The Builder.

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ILLUSTRATIONS.

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Proposed Club House at Woodbury.—Mr. Alfred H. Hart, A.R.I.B.A., Architect ..... *Double-Page Ink-Photo.*
Four Small Country Houses.—Mr. G. A. Bligh Livesay, A.R.I.B.A., Architect ..... *Double-Page Photo-Litho.*

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The Arts and Crafts Exhibition.

THE South Room at the New Gallery is occupied by a collection of the designs and drawings of William Morris, made for fabrics, stained glass, and wall papers; a fine carpet from his design fills the centre of the floor space, and the cases which stand round it contain examples of book-binding, type, and page decorations, from the Kelmscott Press series of books—a series in regard to which it may be said that some at least of the volumes received a care in printing and binding quite out of proportion to the literary value of their contents. Of the general character of the designs exhibited it is hardly necessary to make any special comment; they represent a type of work which is familiar to us now both in its originals and its imitations, but which, as it may be studied here, bears out Mr. Walter Crane's remark in his short prefatory "Notes on the late President of the Society, William Morris," to the effect that while he was an ardent enthusiast for the character and beauty of Mediæval art, and deeply penetrated with its spirit, he wrote and designed freely in what some thought the art of a past age, "but it was as an *artist* and not as an archæologist." Many people fancied that Morris's designs were Mediæval; but they were not in fact so; his style was his own evolution. It was in his social ideas that he was merely archæological, and these fortunately cannot be represented in an exhibition. The collection includes also the oil-painting of "La Belle Iseult" which is illustrated in Mr. Mackail's Life of Morris, and which is stated here to be the only picture he ever painted. This was at the time when, under the influence of Rossetti, he was led to regard painting as his future work in life.

What is noteworthy in the collected designs of Morris exhibited here is the sense of style which pervades them; not any particular style, but the quality of style in the abstract—and in this respect they teach a lesson which some exhibitors at the Arts and Crafts have need to learn. And this is most especially the case in the branch of exhibits most closely connected with architecture—that of furniture. In the reaction which is taking place against display and over-lavish ornamentation the new school of designers appear to be losing the sense of style, and of the dignity of design which accompanies it, altogether. The object now seems to be to make a thing as square, as plain, as devoid of any beauty of line, as is possible, and call this art. Look at the oak dresser for instance, No. 142 in the North Gallery. The semi-circular plan is effective, but the details are absolutely clumsy; the turn-buttons to the small top cupboards look like the work of a savage; the wooden handles to the lower doors, with the panel hollowed just beneath them for the fingers, are actually nailed on at one end, the rough nail-head showing on the top. This is not only not artistic work, it is not even good craftsmanship. Mr. Heal's "Cottager's Chest" (153), green picked out with red, is solid-looking, and there are no drawer-knobs to come off; but it is ugly. Mr. Ashbee's "Oak Writing Cabinet" (167) is apparently meant for a higher class of room, but it is totally deficient in refinement of form, square, heavy, and clumsy, and mouldings seem to be abhorred as an æsthetic crime. The newest source of effect, and the only ornament used in this piece of furniture, is to cut decorative forms out of a band of metal, and show a coloured background through. In this case the background is red; in another example (235), a mahogany writing table, the *fond* is yellow. This cutting out of flat metal costs less than chasing or *repoussé*, but it is unfortunately rather "cheap" in another sense. It pervades a great deal of the silversmiths' work shown in the exhibition, also, and gives it a weak and rather flimsy appearance. The Cabinet No. 235 shows a little more attention to form than the previously named one; but we may point out that the two blocks which form rests for the desk when drawn out are treated in a manner quite out of keeping with the remainder of the work, and moreover they do not look like what they are—mere rest-blocks. Then we come to the largest furniture exhibit in the North Room, the wood chimney-piece with black iron hob-grate, designed by Mr. Jack and exhibited by Messrs. Longden & Co. This is good solid work, but was that ornamental (?) work on the surface above the grate in the least worth even the trouble of the workmanship? There is not an idea in it, and it gives no pleasure to the eye. The oak chimney-piece (180) designed by Mr. G. L. L. Morris is still more futile; good workmanship it no doubt is (made at the Pyghtle works), but it is absurd to call this "design" or "art"; there is nothing to call design in it.

We may contrast with these the teak cabinet designed by Mr. Mervyn Macartney (193), which in an artistic sense is the best piece of furniture in the exhibition; there is a refinement and delicacy of treatment about it which strikes one all the more in contrast with some of the lumbering things in the same room, and the workmanship is excellent. Mr. Heal's "Mahogany Wardrobe" (209) inlaid with pewter, is also a good piece of work, both original and pleasing in effect. The inlay consists mainly of the sentence "Fine Feathers make Fine Birds" in large letters let into a light grey band of wood forming a frieze. One is rather shocked to find so demoralising a motto placed on anything in the Arts and Crafts Exhibition. At the lower end of the room is a large wrought-iron screen for the opening of a pointed arch, "by H. Wilson and Nelson Dawson,' we presume it is designed by the former and executed by the latter. This is the first we have seen of Mr. Dawson except in silver and enamel work. This is an original and effective piece of work, but, like many smaller things in the exhibition, it is deficient in the quality of style; such a detail as the hanging clusters of intertwined rings in the centre panels is not beautiful, and has (as far as we can see) no meaning;

they seem put there for the sake of putting something. One more thing we should notice among the furniture exhibits of the North Room, the little bronze seated figure (220a) designed by Mr. Voysey and executed by Mr. Pegram for the head of a newel-post; a really charming little bit of work both in fancy and execution.

Among the few pieces of furniture in the central hall a fireplace designed by Mr. Jack and exhibited by the Falkirk Iron Company is a good example of the bold and effective yet suitable treatment of cast iron. The same company exhibit a small fireplace designed by Mr. W. A. S. Benson which is pretty; a semicircular head projects above the fireplace, supported by two quasi-Classic colonnettes of exaggerated length, between which the fire is seen. Mr. Troup's leaden sun-dial is interesting and suitable to the material, which however we cannot connect with our ideal of a sun-dial. Messrs. De Morgan & Co. send some specimens of their beautiful lustre ware; Mr. Inigo Thomas a lead flower-pot which, in its graceful Renaissance style of ornament, is refreshing to the eye; Mr. Aumonier has a good and refined oak hall seat with low-relief foliage carving on the back; Mr. Hope-Pinker revives for us, in a life-size coloured statue of "The Knight Trueheart," recollections of the Guildhall masque; and Mr. Dolmetsch exhibits a pianoforte made by himself, with inlays designed by Mr. Herbert Horne and paintings by Mr. Selwyn Image; the result is spoiled by the archæological absurdity of making the wide keys black and the narrow ones white with an inlay ornament. A piano is primarily to play on, not to look at; and to puzzle the eyes of modern players, accustomed to the universal black and white keys, by reversing the order, merely because keyboards were made so a hundred and fifty years ago, is an utter absurdity.

In the textile and embroidery work, on the other hand, there is none of the exaggeration of simplicity, none of the lapse from the quality of style, which we find in the furniture. We have seen finer examples of decorative needlework in former exhibitions than any in the present one, but the majority of them at least have style, and avoid mere eccentricity or commonplace. The embroidered portière (53) designed by Mr. Dearle and exhibited by Morris & Co. is a grand piece of work in the best style. Mr. Walter Crane's portière in the centre of the south wall, on the other hand, although it has a symbolic meaning as a conventional representation of the sun, the moon, and the signs of the zodiac, wants both breadth and the quality of style. We like much better his designs for wallpapers, No. 40 especially, and 47, the "Cockatoo and Pomegranate" design. Miss Una Taylor's large piece of embroidery (4), in a rather peculiar combination of colours which nevertheless results in a good effect, deserves mention; also Mr. Marples's two damask table-cloths (8 and 13), and the frame of small pieces of work for stitch illustrations in a forthcoming book about embroidery (15), designed by Mr. Lewis F. Day and executed by Miss May Buckle. The symbolic embroidery panel, "A precious stone" (5), designed by Mr. H. Ford and executed by Miss Taylor, is a mistake for textile work; the nude figure representing "Sapphire," and holding aloft a purple globe, is a kind of design not suited to textiles; it suits better with materials and methods in which more precision of line and more brilliancy of surface can be obtained. It is curious to observe the recurrence of the peacock in decoration nowadays; in the west gallery we have it in a cushion panel first (2), repeated peacocks; then there is a set of d'oyleys (21) each with a peacock, only worked in varying colours; then we have the peacock in metal relief (97) in an electric bracket in steel, silver, and bronze, designed by Mr. Alexander Fisher, and in which the peacock, for some odd reason is perched upon a boar's head (the design is altogether more curious than beautiful—want of style again); and the bird meets us again in one of the jewellery cases in the same room; there are very likely several other examples in the exhibition if looked for. He certainly is a very decorative bird, but one may complain of *toujours paon* as of *toujours perdrix*.

The Arts and Crafts seem to be regarded as touching on sculpture and figure-drawing so far as these are purely decorative, and when heightened by colour. There are several interesting examples of coloured bas-relief, two by Mr. Walter Crane (37 and 44), of which we prefer the first, "The Genius of Mechanical Invention Inviting Commerce and Agriculture"; the other is rather spoiled by the figure representing "The Genius of Electricity," which is not happy, though the other figures, representing the five "quarters" of the globe, make an effective group. Mr. Anning Bell, who has made a special study of coloured bas-relief, sends a most effective panel, "Music and Dancing," where the upper portions of the side figures are strongly relieved against a dark background within an arch on each side, the lower portion of the background being gold drapery; the drawback to it is the want of beauty and dignity in the heads, a defect which spoils also Mr. Schenck's otherwise fine coloured relief "Wisdom" (32). Cartoons for stained glass are not as good or as interesting this year as in most previous exhibitions; Mr. Whall's "Angels," three cartoons, are very feeble angels; his five-light window for Silk Willoughby Church (85), showing Christ under five different aspects ("Redemptor Mundi," "Judex Omnium," &c.), with a symbolical panel beneath each, is of more interest, and the vertical treatment of the lines of the design harmonises well with the general proportions of the window. Mr. Louis Davis's cartoon for a group of figures, a woman and three children, for a decoration on the Staircase at Welbeck Abbey (67) is very graceful. But the best work in this class is the small water-colour study by Mr. Holiday for the decoration of the east wall of Kirkby Church, Liverpool; the centre long panel shows the Last Supper; the side panels are beautifully treated, with two human figures in each, dominated in each case by an angelic figure raised a little above them and with outspread wings; this portion of the work is charming both in a decorative and symbolic sense, and is something quite out of the ordinary run of ecclesiastical decorative painting.

The jewellery and ornamental work on a small scale is not the least interesting portion of the exhibition. There is a real effort now to put new life and interest into jewellery design, and if this gets sufficient encouragement from the section of the public who chiefly purchase jewellery, the shop jewellery will be likely to lose its market presently. There is a great deal of jewellery of very charming and fanciful design in various cases in the exhibition, which should have the attention of all visitors. We may especially mention the case of work by Mr. and Mrs. Dawson, in the West Gallery; among its contents the necklace in gold and enamel, set with emeralds (No. 1), and the snowdrop necklace, gold and enamel set with moonstones (No. 10), are really beautiful, even to the small and delicate gold chains which bind the whole. The case D D, in the central hall, contains some jewellery and smaller metal work designed by Mr. C. R. Ashbee, assisted by Mr. W. A. White, Mr. Hardman and Mr. A. Cameron; most of this is good, but we specially point out the one numbered 993, on the north side of the case. There is some good silver work in the West Gallery cases, much of which however does not satisfy us because it looks rather like showing how little, and not how much, can be done with the silversmith's art. The tea-set in case O, for instance, by Mr. Dixon, is in pure and excellent form, and it is well to remind people that form is the first thing, and that there may be good art in good form with no ornament; but still one cannot accept this as fulfilling our aspirations in silver work; and there is the same characteristic in a good deal of the silver exhibited—a kind of affectation of plainness, which is really giving up the most beautiful effects of which silver is capable. The tea set just alluded to, for instance, is a well designed plain silver service, but it would hardly be a set to make a present of. We want to see an example of a silver service showing how the richest decorative effect may be obtained without a vulgar display of commonplace ornament.

Bookbindings at this exhibition are much as they were on previous occasions; a certain type of decorative treatment has been developed by the best modern binders, and is always pleasing as carried out by them, but there is not much variety in the conception of a binding at present. Nor do we wish to see too many experiments, which sometimes lead only to eccentricity. In case J, for instance, there are some attempts at novelty, but really the most pleasing binding in this case is the "Old Christmas" (*k*) by Miss Talbot, a plain green upright little volume with one little gilt device in the centre near the top. In case L of bindings designed by Mr. Douglas Cockerell, we may mention that for Tennyson's "Maud" (*k*) as a really original and effective design, gaining its chief character from the happily designed lines of the border ornament.

We hope that, before the next Arts and Crafts Exhibition is held, there will be some effort made on the part of those who design and make furniture to show something really like art in this class of work, and that it will be realised that however admirable is plain and solid workmanship, something more than that is required to raise furniture to an art. We want not only good workmanship, but the quality of style, and that is not to be obtained by merely ignoring ornament and moulding as sources of expression, and neglecting what may be called the shaping power of design.

CHURCH ART AT THE CONGRESS.

AS we remarked the other day, at the close of an article on "The Modern Church," there is no such thing as ecclesiastical art in the sense in which the expression is currently understood. There is the application of art to the service of the church; but the idea that there should be or ever has been a special style of art called ecclesiastical and different from other art, is a delusion of modern days.

It is a delusion, however, fostered by, or at all events in connexion with, the Annual Church Congress. The material to illustrate it is supplied, not by artists, but by trading firms which deal in articles supposed to be on the true pattern of ecclesiastical art, and made by craftsmen in their employ, whose names are not allowed to appear. The so-called art exhibition of the Church Congress is a mere shop, and it seems to be this year more obviously so than ever. The Gothic revival had its strong side, no doubt, but its weakest side is painfully illustrated in the stalls of imitation Gothic work exhibited by firms who seem almost pathetically unaware how out of date they are; and when we see, as we do at more than one stall, some brass eagle lectern or other such object, in what is supposed to be the approved style, with a label attached stating that "this lectern" (*i.e.*, this pattern) "has been supplied to the following churches," as if it were an economical form of heating-stove, such a notion of church art induces one to recommend the clerical directors of the Church Congresses, for the credit of the meetings, to put a stop to this so-called ecclesiastical art exhibition for the future.

There are two exhibits in the collection, however, which do not come under the ordinary heading of church art, and which are of some interest. One of these is Mr. Kirkland's organ for use as a chancel or a chamber organ, and called by him the "Minster organ," the object in which has been to produce a soft round tone, rather suggestive of a large organ heard at a distance. The frequent defect of the small organ heard in a confined space is that there is no breadth or repose about the sound; it comes loud and whistling on the ear. The organ exhibited and played on at the Church Congress gallery certainly avoids this defect, and achieves the professed aim of the maker. Of course Mr. Kirkland has no monopoly of such a tone; it is merely a question of "voicing"; the great organ-builders of the day could produce it in a small organ if asked to do so; but he has practically suggested what is really needed to render an organ of small scale and confined in a small space an enjoyment to the ear. The other exhibit we refer to is Messrs. Taylor's specimen of a large church bell with its gearing, hung in a steel bell-frame. We should like to be able to compare the effect of two similar peals, the one hung in a timber frame and the other in the steel frame, to ascertain whether there is any effect produced on the tone thereby. If there were, it would not be in favour of the steel frame; but if the tone of the bells is unaffected, every other advantage is on the side of the steel. We also heard with interest Mr. Taylor's own experience and opinion in regard to the advantage of building the bell frame boldly into the tower wall, instead of endeavouring to isolate it as far as possible by resting it on corbels and keeping the beams clear of the wall. We touched on this point the other day in reference to a letter in the *Times*, and observed that architects would feel sceptical about this method, and probably many of them will be, but the actual experience of a practical bell-founder like Mr. Taylor is certainly not to be lightly dismissed. He tells us, indeed, that in cases where the timber bell frames of the old type had been erected clear of the wall, he had found wedges driven in subsequently between the beam and the wall to steady the bell staging, as a practical necessity. The point is one of some practical interest to architects, and we should be glad if any of those who have tried Mr. Taylor's method will give our readers their experience on the subject.

The Loan Exhibition at the Congress is, on the other hand, of great interest, and it is a pity it could only be open for so short a time. It was unfortunately badly lighted and not very carefully arranged, and the numbers identifying the objects with the description in the catalogue had in some instances obviously got displaced and put alongside the wrong objects. But there was a very fine collection of old Church plate of various dates; and among the interesting incidents of the exhibition was the set of beadles' staves from various London churches, many of them topped with figures or emblems in silver, of no little artistic interest. We can only just mention here a few of the objects of interest among the collection of plate. Dr. Phené lent an ancient Nuremberg cup and cover, in a style suggesting however Italian rather than German art; it has been used as a chalice though the emblems are not Christian. A silver-gilt cup and cover, from the parish church of Ashby-de-la-Zouch, is an interesting example of Renaissance ornament on a bowl the foot of which has the usual mediæval form. A small censer formerly used in the Holy Sepulchre church, exhibited, with many other articles, by the Rev. W. H. Oxley, is of considerable interest both in an architectural and archæological sense. The beadle's staff from Spitalfields Parish Church has a special interest in that its silver head shows a model of the old Spitalfields market. Among other things which specially attracted us were a baptismal ewer of old Flemish repoussé work, lent by the Rectory of St. Peter's, Walworth; three pewter alms dishes with enamel centre bosses, lent by the Rector of St. Katharine Cree; the remarkable French chalice belonging to the parish church of Kea, Cornwall; a silver filagree paten of Indian make, lent by the Vicar of Christ Church, Newgate, and bearing the curious and historically interesting inscription, "Gulielmi Mainstone ex Indis Orientalibus reversi, deo optimo maximo humillimum votum 1675"—a kind of inscription one would hardly have expected to find at so late a date; a silver cup, dated 1559, from St. Botolph Aldgate, with the inscription "And he toke the cup," &c.—an example of good effect produced by very simple means; and a communion cup dated 1662 with the London Hall mark, of very unusual design, the cup divided by vertical bands into six spaces each filled with a flower in low relief; a similar ornament, reversed, on the spreading foot: lent by the Rev. Hugh Williams, of Bettws-y-Cruen, Shropshire. We ought to mention also Dr. Clapton's interesting exhibit, on a separate table, of specimens of woods and precious stones mentioned in the Bible. We have merely noted however a few stray objects among a collection over which pages might be expended without exhausting its interest. What we wish however especially to point out is that the great difference in interest between the artistic objects here and those in what we call the "shop" exhibition is that they are productions of the genuine and living art of their day, and not conscious imitations of something which is supposed to be ecclesiastical; and thereby hangs the moral.

Then we have also the exhibition, at Lord Leighton's house, of the Clergy and Artists' Association, with which we have every sympathy, as the object of it is to get artistic work accepted for churches from individual artists, instead of in stock patterns made by nameless artisans for trading firms. The great point is to be in relation with the actual artist who does the work, and to let him have the credit of it. The object of the Clergy and Artists' Association is in fact just the same as that of Mr. Montague Fordham's new establishment which we mentioned last week, viz.: to create a depôt where artists may bring their work. It may be said that this is only the formation of a new order of "middleman," but then it is a "middleman" of a very different type, who, instead of wishing to hide the artist behind him, aims especially at bringing the artist to the front. While sympathising with the aim, however, we confess to being disappointed with the result in this case. A shilling was charged for entrance—the normal charge at exhibitions; but having in view what can be seen for that sum in other exhibition galleries, we should call it a poor shilling's worth. Of the few architectural drawings exhibited, the best have already been on view at the Royal Academy. Some other things in the exhibition—Mr. Dressler's "Photograph of Example of Glazed Earthenware" for instance, are obviously not intended for church use. Mr. Louis Davis's cartoons for stained glass windows are however really interesting, and are free from the taint of adopted mediævalism. A pair of brass altar vases by Mr. W. Bainbridge Reynolds show also free artistic design untrammeled by precedent; an enamel and brass altar cross by the same hand is also good.

But the most interesting and suggestive portion of the exhibition is to be found in the collection of small bas-reliefs, chiefly by one sculptor, Miss Rope, arranged in the recess beneath the window of Leighton's former studio. Miss Rope's "Suggestions for Memorials" are a series of small bas-relief sketches in plaster, representing a kneeling figure or some other group suggestive of pious remembrance. Her coloured plaster relief for the centre panel of a reredos for a Hospital Chapel, or church of the Holy Innocents, showing a group of children, is a charming work. On one side of the recess is a panel, by Mr. Conrad Dressler, of a praying child, "enamelled sculpture," the figure white on a blue ground. There are one or two others of Mr. Dressler's works of similar type, and others by Miss Rope here and in other corners of the room. These are really

religious art; that is to say, they represent the art of sculpture applied in a natural and unaffected manner, and with no pretence at a conventional "church style," to subjects of religious import and feeling. That is what "church art" ought to be.

NOTES.

The Architectural Association.

We hope all our younger readers who were not at the opening meeting of the Architectural Association last week will read the President's address, printed in full on another page—an address which the Association may well be proud to have had from its President. It is equally characterised by excellent literary expression, sound common sense, and a genuine enthusiasm for architecture. One or two points in it we should like, so to speak, to underline. We were very glad to read Mr. Prynne's remarks in favour of greater catholicity of feeling in regard to buildings in a style with which we do not ourselves sympathise, and on the real value of much of the Gothic revival architecture—a point of which young architects of the present generation are rather in want of a reminder, as many of them seem too inclined to think that because the point of view has changed the work of the prominent men of the Gothic revival is no longer worth attention. We also entirely endorse his remarks on the importance of the class of design and a close attention to the study of detail, and on the danger of working with no higher aim than to make drawings sufficiently good to qualify for the Institute examination or for admission to the Royal Academy. We would also support his advice to students not to neglect land surveying; it is the means of enabling them to understand the site of their own buildings instead of having to take it at second hand, and it is a wholesome influence in the direction of that practical knowledge in architecture which there is at present rather a tendency to undervalue.

Reported Disaster at Karnac.

The daily papers have recently printed a brief paragraph stating that nine of the great columns at Karnac have fallen. Ordinary press agencies would never think it worth while to telegraph details on such a subject, knowing that the daily papers are quite indifferent to them; we shall probably have more information presently; but if the main fact is true, it only shows how absolutely necessary it is to take immediate steps to prevent this and other great monuments of Egyptian architecture from falling into ruin.

Proposed School of Oriental Archæology at Beyrouth.

We learn from a note communicated by M. Clermont Ganneau to the last issue of the *Révue Archéologique* that the question of founding a branch school of Oriental archæology in Syria is under consideration. The French nation already has its archæological school in Athens, in Rome, and in Cairo, and the new station at Beyrouth would be an offshoot of the Cairo Institute. The objects in view would be, as usual, the exploration and excavation of sites; the systematic collection of photographs, casts, and plain drawings; and the acquisition of antiquities for the National Museum of the Louvre. Foreign museums usually have to purchase their antiquities through agents at a high price. M. Ganneau hopes that the new Institute will secure antiquities on the spot from peasants ignorant of their market value (not a very moral method of economising). He believes that the whole expense of the Institute might easily be recouped by this economy, and he commends his scheme to the consideration of the Département des Affaires Étrangères.

Vase with the Myth of Laocoön.

The new number of the *Monumenti Antichi*, issued by the Accademia dei Lincei (vol. ix., page 1, 1899), publishes a red figured vase of exceptional interest, on which is represented the slaying of the two sons of Laocoön by the serpents. The vase in question, of which four fragments only remain, was found near Bari. The subject is all but unique, the only other instance being a kantharos in the British Museum, the interpretation of which is not beyond dispute. The myth is represented in very drastic fashion. One of the sons of Laocoön has been already eaten up, all except two feet and one hand, which is still in the mouth of one of the serpents. The other serpent—a huge monster—is coiled round the remaining son, who stands by an altar in the act of offering libation. The sanctuary is marked as that of Apollo, both by the presence of the god and his sister Artemis, and by a large tripod. Whether Laocoön himself was present or not is uncertain, as the vase is fragmentary. The same number contains an interesting study, by Dr. Robert, of the works of the vase-painter Polygnotus, with a publication of the three vases that bear his signature.

Architectural Museum for Berlin.

Berlin is shortly to have an architectural museum on a large scale, to be erected on a site near the Royal Technical College at Charlottenburg. This museum has been much needed, especially by the architectural students at the college, who, up to the present time, have had to be satisfied with the somewhat second-rate collection of casts and models which are crowded away in a suite of rooms at the top of their building. Every effort will be made to make the new museum thoroughly representative, and we already hear that two prominent officials have been visiting our collections in London and are now on a visit to Paris. The importance of an easily accessible museum of this kind for those studying their profession cannot be overrated, especially if ample facilities are also given for sketching and for studying the many drawings which are generally inaccessible in collections of this description. Designs for the new building are to be prepared immediately, and we shall be curious to see on what lines the museum will be laid down.

Iona Cathedral.

We learn that, by a deed executed at Inverary on September 22, the Duke of Argyll has set up a public trust in connexion with the Established Church of Scotland, in respect of St. Mary's Cathedral, in Iona. The Duke conveys to certain named trustees those three parts of the island which form the site of the ruins, comprehending the cathedral church, St. Oran's chapel, and the nunnery, together with the adjoining burial grounds, the tombstones, &c., and records his wish that the church may be re-roofed and otherwise restored for public worship. Iona Cathedral is described and illustrated in No. 5 of our series of "The Ancient Cathedrals of Scotland," *Builder*, November 4, 1893; so we will say here only that the cemetery chapel founded by Queen Margaret in memory of Columba's contemporary in, it is supposed, 1070, is distant 100 yards south-west from the later cathedral, and is considered to mark the site of Columba's first church in the midst of the ancient graveyard. The nuns, who lived after the rule of St. Augustine, were not dispossessed at the dissolution of 1561, and remained there during a long while. Under the Norwegian kings the western isles of Britain were divided into the Nordureys and the Surdureys. Iona was the ecclesiastical seat of the former, and Man of the latter, whence, it is said, was derived the name of the Bishopric of Sodor and Man. The Bishopric of the Isles, founded in the ninth century, was joined to that of Man at the close of the eleventh century.

Covered Reservoirs.

Under ordinary circumstances the open storage of water tends to improve quality, owing to beneficial action by aëration and light, and the only exception is in the case of deep-well water. In the vicinity of towns, however, experience has shown the desirability of covering reservoirs, so that dust and other matters floating in the air may be excluded. Different methods have been adopted for this purpose. At Vienna, the main distributing reservoir is covered in by a roof supported on granite pillars, in other places on the Continent and in Great Britain, arched roofs supported on cast iron columns or by groined arches have been largely employed, and the latter form of construction is chiefly followed in the United States. Perhaps one of the most interesting contributions to hydraulic engineering literature of recent date has been a paper presented to the American Society of Civil Engineers. The paper in question evidences careful study and research, whilst the tabulated results add materially to its value. It is mentioned by the author that all the examples of the groined arch in waterworks engineering which have come to his notice are to be found in the United States. As we have already indicated, such applications are by no means new in Europe, and the reservoirs of Menilmontant, Belleville, and Montsouris include notable instances of such construction. The last-named has arching in the "Guastavino" method, which as a matter of fact was recently introduced into America. Many advantages are, no doubt, offered by groined elliptical arches; the quantity of material is moderate, there is clear head room in each direction, and the arrangement is favourable for ventilation. Brick has been hitherto chiefly employed as the material, but the use of concrete is now becoming more popular. As a general rule, the cost of the latter may be taken at one-half that of brick masonry, and it is suitable for almost any kind of arch. Piers are more frequently built of brick, and it is probable that no financial or other advantage is to be gained by departing from this practice. There can be no doubt that masonry coverings are pleasing to the eye and are, at the same time, in every way satisfactory. Their cost is, nevertheless, unnecessarily high, and it is likely that other designs will

ultimately supersede groined arches. Concrete and steel tie-bars combined are equally durable, strong, and efficient, besides being considerably cheaper.

High Speed Telegraphy.

The very successful trials of the Pollak-Virág system of high speed telegraphy between Budapest and Berlin have attracted a good deal of public attention. In this system a strip of perforated paper is fed into a roller which is driven by an electric motor. The holes in the paper allow the brushes of the transmitter to make contact with the metal roller in a regular sequence, and thus send positive and negative signals to the receiver. The receiver is a telephone with a mirror fastened to its diaphragm. A beam of light from a glow lamp is reflected from the mirror and falls on a sheet of photographic paper wound on a drum. The slightest motion of the diaphragm is thus magnified considerably by the ray. The drum is made to revolve on a screw spindle so that the message is written in a continuous spiral on the paper. It will be seen that there is nothing very novel in the system, there is no new principle involved, yet the results achieved are sufficiently startling, as a speed of 1,500 words per minute has been attained. In order to understand how this compares with the Wheatstone automatic telegraphy used by our own Post Office, we may mention that a speed of 400 words per minute has often been attained. For example, a few years ago four out of the five wires which then joined London and Birmingham broke down, but the remaining wire, going at full speed, was able to do all the work. Eleven telegraphic clerks were required at each end of the wire, namely five punchers for the perforated strip, one operator in charge of the sending and receiving apparatus, and six writers to interpret the messages received. To double or treble this speed is no doubt a great achievement, but it must be remembered that we have also to more than double or treble the number of clerks. The Post Office has found that it is not economical to introduce the highest speeds on circuits under about a hundred miles long. For long distance telegraphy this new invention may be valuable, but it is a little premature to talk of a reduction of telegraph rates on the strength of it.

Sanitary Condition of Ilkeston District.

Dr. Wheaton's Report to the Local Government Board on enteric fever in the Ilkeston Registration Sub-district, shows a better state of things in regard to sewerage, and the condition of buildings, than we generally find in Reports made under these circumstances, and leaves no doubt that the water supply is responsible for the unhealthy state of the district. It is derived from three sources—(1) the Nutbrook; (2) a disused coalpit; (3) private wells. The water from sources (1) and (2) is collected and distributed by waterworks, which are the property of the Town Council. The quantity of water has been sufficient for the needs of the borough. The quality of the water obtained from the Nutbrook, which is the main source of supply, is however stated to be of the most objectionable character.

"The water standing in the reservoir and filter tanks has a very unpleasant appearance. It is greenish in colour, very turbid, and contains decaying leaves and other vegetable debris.

The water of the Nutbrook is derived from the Stanley Brook, the Mapperley Brook, and the Nutbrook Canal. These join the Nutbrook in the above order from below upwards in its course.

The Stanley Brook, which is the most important feeder of the Nutbrook, commences in the neighbourhood of Morley, about four miles from Ilkeston. It is there formed by surface drainage, from land which is mostly laid down in permanent pasture. Until it reaches the hamlet of Stanley Brook, which consists of twelve dwellings, the water in it has a clean and bright appearance, but at this point, which is about three miles from its junction with the Nutbrook, the water in it is grossly polluted. The hamlet of Stanley Brook is situated on the banks of the stream. The midden privies pertaining to dwellings are in several instances built directly abutting on the stream. All the liquid refuse from the dwellings, and much of the contents of midden privies pass or are thrown into the stream, which also forms the receptable for all the household refuse. About 100 yds. below the hamlet of Stanley Brook, the stream receives a large amount of foul water from a colliery.

A short distance further on it is joined by a small watercourse conveying all the liquid refuse from the hamlet of Stanley Brickyard, which consists of three rows of houses. The liquid refuse from a row of dwellings here, sixteen in number, is directed into a roughly-constructed tank, the overflow from which passes into this watercourse; that from the remainder of the dwellings flows directly into the brook. This watercourse at Stanley Brickyard also receives the contents of privies, and is in such a condition, owing to accumulation of filth in it, as to be a dangerous nuisance. . . .

From the above account it will be seen that it is hardly possible to imagine a more dangerous and disgusting source of water than the Nutbrook. The water furnished by the disused coal pit at Kirk Hallam appears to be of good quality, but its quantity is limited."

It is clear that a new water supply is urgently needed; but although the Town Council in 1898 obtained a private Act of Parliament to enable them to carry out works of water supply, it appears that nothing has been done so far.

The Beaufort Estates, Monmouthshire.

The first sale of the Chepstow portion of the Duke of Beaufort's property took place last week. The lots comprised various houses and parcels of land, with the Bridge Foundry, in Chepstow, bought for (in all) 15,580*l.*, the old town gate in the port wall, the ruins of Striguil, or Chepstow, Castle, and 40 acres of riverside land between the Wye and the Great Western Railway, the last-named being sold for dock and other building purposes. The Duke of Beaufort presented the town gate to the district Urban Council, and withdrew the Castle, at a reserve price of 20,000*l.*, from the sale, the highest bidding being for 6,000*l.* The Castle, one of the five that claim to be the first castles built after the Conquest, is situated upon a steep rock, and commands the mouth of the Wye; it formed an important outpost during the Civil War, and was dismantled after the surrender of the Castle and town to Colonel Morgan by the Royalist garrison. William Fitz Osbern, Earl of Hereford and Breteuil, who is said to have instigated the Norman invasion of England, built the western portion in 1066-71. It passed to the Earls of Norfolk, of whom the fifth, Roger Bigod, added to the fabric, which at his death without issue in 1306 returned to the Crown. In 1312 Edward II. granted Chepstow, with the Earldom of Norfolk, to his own half-brother Thomas, surnamed de Brotherton, Earl-Marshall of England; in 1468 it passed from Thomas, fifth Duke of Norfolk, to William, Earl of Pembroke, whose granddaughter and heir brought it in marriage to Charles Somerset, Earl of Worcester, ancestor of its present owner. The castle was the prison-house of Jeremy Taylor, and for thirty years of Henry Marten, the regicide. The entire estates, covering 26,000 acres, lie in a district famed for its beauty, and watered by the rivers Wye, Monnow, and Usk. They include Usk Castle—the birthplace of Richard III. and Edward IV.—sold in May last for 18,370*l.*; Tintern Abbey; Monmouth, Skenfirth, White, Grosmont, and Raglan Castles; and Troy House (attributed to Inigo Jones, 1652), famed for its gardens, the seat, *temp.* Charles I., of Sir Thomas Somerset, whose brother, Henry, Marquis of Worcester, held Raglan for the King during four years, until he capitulated to Fairfax.

Messrs. Watts & Co.'s Exhibition.

Messrs. Watts & Co. are holding an exhibition of art needlework at their rooms in Baker-street during the Church Congress week. It comprises many objects of ecclesiastical art, conspicuous amongst which are the Frontal Altar Cloth for Eccleston Church, Cheshire, for the Duke of Westminster, K.G., designed by Mr. Bodley; the Canterbury Herse-cloth, designed by Mr. St. John Hope; and the Lichfield Cope. The designs of Mr. Bodley cannot help being attractive, and will adorn his own beautiful church as an organic part of the whole design. There is also a fine altar cross by the same artist, besides other brass work. After viewing an exhibition of gorgeous and expensive trappings to the high offices of the church, one naturally asks whether we have here the height to which embroidery at the present day can attain? It would seem that the workmen have realised their ideal; the stitches are wonderful, and of every known variety ever used or invented by modern or ancient history, all are at their finger-tips; the execution is nothing short of perfection. But is that all? Are the majority of designers in this class of work satisfied themselves with the results? Their idea would seem to be to emulate and copy the exquisite periods of art needlework of the fourteenth century. They are artists; they are archæologists; they are critics; they are lovers of old work; they know all the history, the æsthetic questions, and technical rules involved; they give us real harmonies of colour; every tradition, every pattern, every bird or beast, every symbol, is known to them, and used with a knowledge that disarms criticism. Yet the feeling is that the total result has hung fire. Old masterpieces are copied to perfection—the Tudor rose, the honeysuckle, the tree of life, the emblems of the Passion—all are there on cope or altar-cloth. Emerson justly said that all arts have their origin in some enthusiasm, and if there is organic failure in these superbly decorated stuffs, it is that the old needlework was based on an enthusiasm for flowers and birds and beasts and symbolism, and that the new needlework, like other branches of modern art, is based on an enthusiasm not for nature, but for antique art. Such a fine art as that of needlework must not be imitative, but creative in its aim.

A Name for the New Street.

Some of the daily papers are anxious about the most fitting name for the new street from Holborn to the Strand, and we agree with them that it is not a trivial matter. The

name of an important new street may carry a great deal of historic association with it, and assist to preserve the memory of an important person or event: "Waterloo Bridge" is a prominent example. The *Pall Mall Gazette* makes a rather good suggestion, viz., that it should have the name of "avenue" as more suitable to its size and importance than "street" or "road," and that it should be called "Imperial Avenue," or "Avenue Imperial." To the latter collocation of the words we object decidedly; why adopt a French form of words for a street in the English capital? We may make another suggestion: having in remembrance the late Poet Laureate's trenchant question—"Have we forgotten Gordon?" with which he startled the public in the *Times* one morning, we suggest that the name of the greatest and noblest Englishman of his day should be commemorated by naming the new street "Gordon Avenue."

AN EXHIBITION OF TUNBRIDGE WARE.

Tunbridge Wells has awakened to the fact that it has a much neglected industry in its Tunbridge ware, and has this week been holding a special exhibition of it, old and new together, with examples of kindred work lent from South Kensington Museum. Tunbridge ware is formed by building up slips of wood, having a square or triangular section, to make a pattern. The strips are glued together into a solid block, from which thin transverse sections are cut. These are used as veneers to decorate flat surfaces. Modern pieces of Tunbridge ware have been made containing nearly one thousand different pieces of wood to the square inch. Considerably over one hundred and fifty kinds of wood are used. Holly is boiled to increase its whiteness, Hungarian ash and maple are steeped in chalybeate water for several days for the purpose of turning them into different shades of grey; oak is sometimes attacked by a certain fungus which turns it into a beautiful blue-green. Artificial dyes are not used. The history of the ware is shrouded in some obscurity, but it seems to have been introduced from Germany by the sale of inlaid woods and toys of German manufacture upon the Pantiles. Benge Burr, in a history of the town dated 1766, says that it was customary for those departing from the town to take away "Tunbridge fairings to their friends at home." The first record of local manufacture was in 1720, when a man named Burrows started the production of wood mosaics in diamonds, triangles, and stars, some of which are still in existence. The process of manufacture seems to be identical with that used in the production of Indian inlay work, and it seems probable that the impetus to the special method of construction may have been received from the same source. The art in India was introduced into Sind from Shiraz, in Persia, towards the end of the eighteenth century. From thence it was introduced into Bombay in the early part of the nineteenth century. There is an air of Orientalism in the conception of the work and in the skilful manipulation that is required in its execution.

The object of the present exhibition is to show the public examples of old and recent Tunbridge ware, and to stimulate the improvement of its artistic possibilities by the production of new designs. To this end the Technical Education Committee offered premiums in open competition for the best designs suitable for the ware. Mr. Walter Crane adjudged the prizes and gave an address on the Wednesday evening, the opening day. The designs submitted were not very satisfactory, owing in all probability to Tunbridge ware being so little known to the majority of designers. The use of the decoration is at present confined to cabinets, tables, tea-caddies, glove and card boxes, picture-frames, and small fancy articles. There is no reason why it should not be used on a larger scale, say for the interior decoration of Atlantic liners or railway carriages. If it were controlled and properly guided it might have a large demand for superior cabinet and [furniture] decoration. There are at the present time only two firms producing this ware, one of which we are informed is giving up, and the promoters of this revival say that the difficulty they have to face is that it does not pay. It would be a pity for it to die out from lack of public appreciation. Why should not a small company be started, even at a small financial loss at the start, of art students and others under a recognised art director, and set to work, say, for two years to see what can be done with it? At no time has there been so increasing a demand for and interest in good inlay work, witness the interest in and prices taken for inlay work of the Queen Anne period; and we must credit the public with admiration for the decoration as for its antiquity. They like inlay work because it adds interest to common and familiar things about their house, and they would sooner have things that so grow into their affections of decorative value than the ugliness of early Victorian furniture.

The exhibition is strengthened by objects from South Kensington Museum, inlaid and marquetry work at its best, which should rouse some enthusiasm in those who have the future welfare of this art before them. The exhibition is a conscious cultivation of art, and an endeavour to interest the public in its life and preservation by calling special attention to the most important side of art, that of decorating utilities by giving them genuine artistic finish, the work of cultivated minds as opposed to trade or shop standards of excellence. "For the hand can never execute anything more beautiful than the character can inspire."

THE ARCHITECTURAL ASSOCIATION:

OPENING MEETING OF THE SESSION.

The opening meeting of session 1899-1900 of the Architectural Association was held on Friday last week in the Meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, Mr. G. H. Fellowes Prynne, President, occupying the Chair.

Annual Report and Balance-Sheet.

A long list of nominations having been read, the adoption of the annual report and balance-sheet was moved by Mr. W. H. Seth-Smith. The report will be found on page 149 and subsequent pages of the new "Brown Book." The Committee report a further increase in membership, the total number of members at the close of the Session being 1,270. Eighty-nine new members were elected during the Session, nine members rejoined, and the losses by death, resignation, and other causes, amounted to forty-six, being a nett increase of fifty-two members. A grant of £100 has again been contributed by the Royal Institute of British Architects in support of the educational work of the Association. The common room at 56, Great Marlborough-street, has been enlarged, furnished, and redorated, under the direction of the President. The whole of the ground floor now being leased coterminous with the lease of the present premises, the difficulty of sub-letting, in the event of obtaining more suitable premises, is reduced to a minimum. A sub-committee has been formed for the purpose of preparing lists of buildings of interest in London and the provinces, with the names of architects, with a view to assist students in selecting examples for sketching or measuring. It is proposed, subsequently, to publish these lists in Architectural Association Notes. The whole subject of the prizes has been considered by the committee and important revisions have been made in the rules, conditions, and prizes offered by the Association. These appear in the Brown Book. It was thought that a series of lantern slides for the purpose of lending the same to lecturers and members would be of considerable value to the Association, consequently a collection of slides is now being made, and a photographic album will be kept in the Library for reference. In response to an application from the promoters of the Copyright (Artistic) Bill, 1898, it was resolved that the general support and sanction of the Committee be given to this measure. The educational work shows a great improvement over previous sessions, and although in several classes in Division I. the number of students has slightly decreased, the entries in Division II. were more than double those of the preceding session.

Mr. Seth-Smith, in moving the adoption of the report and balance-sheet, said the Association might congratulate itself on the fact that they were carrying forward a better balance than they did last year. The Association was in a good position financially, and as far as he could see there was every reason to believe that the improvement would be permanent. Matters had been placed on a very sound basis now, especially in connexion with the educational side. As the report stated, there had been an increase of members to the number of fifty-two—a good many past members having rejoined, which was a matter for congratulation—and there had been fewer resignations than there used to be. The committee had again recorded the generous grant of 100*l.* from the Royal Institute of British Architects, a grant which they were very grateful for, and which was very useful. It was a matter for congratulation that a capital common-room had at last been provided, and their thanks were due to the President, who had personally arranged the decorations and fittings, and presented the beautiful cloch. The papers and discussions at the ordinary fortnightly meetings had been of exceptional value and interest, and thanks were due to the readers of the papers for the great pains they had taken in dealing with their subjects. He did not think there was any other society in London of the kind which provided more practical and valuable papers. The library had been well patronised, but they had a great need of additional books; he hoped that the members and friends would be generous in that direction. On the educational side of the Association's work, the attendance had been particularly good in the classes, some students not missing a single attendance in some of them; the general work showed an improvement on that of the previous session. The entries in Division II. were more than double those of the preceding sessions.

Mr. F. G. F. Hooper seconded the motion, remarking that he agreed with all that Mr. Seth-Smith had said. It was, however, a matter for regret that more than one of the prizes during the past year had not been awarded. The subjects were as attractive as they had ever been, but in one or two cases the competition had been very small, and the work of insufficient merit to justify any award. He hoped that this publicity would stimulate men to come forward and prevent a recurrence of this in the future.

The motion having been agreed to,

Mr. Hampden W. Pratt proposed a vote of thanks to the honorary auditors, Messrs. J. W. Stonhold and W. E. Davis.

The vote of thanks having been carried,

The Chairman announced that Messrs. G. Collins and C. A. Kelly had been reinstated as members.

He also stated that Messrs. Hart and Satchell have resigned their seats upon the Committee in accordance with the standing orders, which require any office-bearer who is appointed to a paid office (lectureship) to resign. These gentlemen, however, had submitted themselves for re-election, and he had pleasure, in accordance with By-law 35, in proposing them as members of the Committee.

The Chairman then proposed a vote of thanks to the Royal Institute of British Architects for their eighth grant of 100*l.* The grant was of great service to the Association, and it showed that the Institute took a practical interest in them. They thoroughly appreciated that interest, though, perhaps, they had some right to look for it, as the Association supplied the Institute with a large number of students for the examinations.

The vote of thanks having been heartily agreed to,

Mr. G. B. Carvill, senior Hon. Secretary, announced that the annual conversazione will be held at the King's Hall, Holborn Restaurant, on the 20th inst., at 8 p.m.

Presentation of Prizes, &c.

The President then presented the prizes, medals, and certificates gained during the past session. The following is the full list:—

A.A. Travelling Studentship, value 25*l.*, and Bronze Medal, D. T. Fyfe; Second Prize, value 5*l.*, H. Tanner, jun.; Hon. Mention, H. Farquharson; A.A. Medal, not awarded; Prize, value 5*l.* 5s., H. Tanner, jun.; Andrew Oliver Prize, value 5*l.* 5s., G. J. T. Reavell; Arthur Cates Scholarship, C. L. Fleming-Williams.

Lectures.—Division I. — Silver Medal and A.A. Scholarship, value 6*l.* 6s., P. J. Westwood;

Bronze Medal, A. R. Conder; Hon. Mention, H. J. Worrow.

Division II.—Silver Medal, P. J. Turner; Bronze Medal, H. S. Barrett; Hon. Mention, R. H. Spalding.

Studio.—Division I.—Silver Medal and One Vol. of the A.A. Sketch Book, S. V. North; Bronze Medal, A. A. Carder.

Division II.—Silver Medal, A. Symon; Bronze Medal and One Vol. of the A.A. Sketch Book, G. H. Jenkins; Hon. Mention, W. J. Davies.

Order of Merit.

Division I.—Greek and Roman Orders.—C. H. R. Henman, Certificate; S. V. North, P. J. Westwood.

Elementary Construction.—P. J. Westwood, Certificate and Book; B. Greig, A. R. Conder.

English Architecture.—P. J. Westwood, Certificate and Book; A. R. Conder, G. L. Elkington.

Mediæval and Renaissance.—S. H. Goodwin, Certificate and Book; B. Greig, S. Bridges.

Elementary Physics, Formulæ, and Calculations.—H. J. Worrow, Certificate and Book; P. J. Westwood, B. Greig.

Plane and Solid Geometry.—W. A. Jeckells, Certificate and Book; A. R. Conder, H. J. Worrow.

Division II.—Materials, their Nature and Application.—T. G. Chambers, Certificate and Book; H. S. Barrett, P. J. Turner.

Construction.—P. J. Turner, Certificate and Book; R. H. Spalding, A. S. Dorrell.

Drainage and Water Supply.—P. J. Turner, Certificate; P. B. Dannatt, J. E. Franck.

Ventilation, Lighting, and Heating.—J. E. Franck, Certificate; S. H. Goodwin, P. J. Turner.

Professional Practice.—P. J. Turner, Certificate; S. H. Goodwin, J. E. Franck.

Elementary Class of Design.—First Prize, value £1 1s., with Silver Medal and Certificate, R. Knott; Second Prize, Bronze Medal and Certificate, E. S. Collins; Hon. Mention, E. Brantwood-Muff.

Advanced Class of Design.—First Prize, value £1 1s., with Silver Medal and Certificate, J. A. Swan.

The President's Address.

The President then delivered the following address:—

Gentlemen and fellow-students in architecture,—My first words in addressing you for the second time from this chair must be to express my warm appreciation of the honour you have done me in re-electing me as your President for the ensuing year. If, when I first accepted this honourable and important position, I felt that the responsibility was a great one, I can assure you that after a year in office my sense of that responsibility has increased rather than diminished, and it is with no small diffidence that I again accept the post of President of the Architectural Association.

However, the very fact of my re-election leads me to hope that I still have your confidence, and that I may depend upon your help and support during the coming session. I can only promise you I will give in the future, as I indeed have tried to do in the past, my best services and energies to the interests of the Architectural Association and its grand educational work.

Before proceeding with the more formal part of this address, I cannot refrain from first expressing my warmest gratitude to each individual member of the late Committee for their unswerving loyalty, and the support given to me as their Chairman during the last session, and especially to the Hon. Secretaries, Mr. Howley Sim and Mr. G. B. Carvill, and our Secretary, Mr. Driver. Nothing could have exceeded the harmony and good-will that has existed on all sides. There has, as far as I remember, been no single note of discord. All have worked with one end and aim—the good of the Architectural Association—with the natural result that I think we may fairly congratulate ourselves upon the exceptional—I may say, almost phenomenal—success, both from a working and financial point of view, of the past session.

First, as regards membership, I am glad to be able to state that the roll of members is the highest on record, and that the total now exceeds 1,250. That our financial position is equally sound and satisfactory may be judged from the fact that, in spite of necessarily increased expenditure, we are able to carry forward a record balance of not less than £224 odd to our premises and general fund.

In my opening address last year it may be remembered that I called special attention to the work of the Studio, and more particularly to that branch of its work that most closely binds us with the past work of the Association, and is still most closely allied to the voluntary system of teaching—I mean the School of Design. I then pointed out that the Committee had been a good deal puzzled to find out the cause for the general falling off in the membership and work of this once popular class, and I expressed my earnest hope that the alterations made as to the fees, and the working out of designs, would make the work of that class more really representative of the work of the Architectural Association.

My hopes have been more than verified, and it is most satisfactory to find that the efforts of the Committee have in a great measure succeeded in making both the Elementary and Advanced classes of design as they should be, not only the most popular, but one of the most useful classes in the whole system of the work of the Association. As against the numbers of twenty-two and twelve students who joined the Elementary and Advanced classes of design respectively in the previous session, no less than seventy-eight and seventeen students joined during the last session. This success was, I am glad to say, not confined to numbers only; the work done showed a great advance on that of some previous years, and some designs sent in were of considerable merit.

The interest and enthusiasm was, however, partly perhaps owing to numbers, better sustained in the Elementary than in the Advanced class. It is hoped that this may be remedied in future years, as the Committee, profiting by the experience gained during the last session, have wisely decided to make the subjects in the Elementary class somewhat more elementary in character, with the view of inducing all students to join the Elementary class in their early years of study, and as a matter of course to follow on into the Advanced class, which in future will not be an advanced class in name only.

I do most sincerely hope that all students who joined the Elementary class last session will rejoin the School of Design this year, and continue their studies, either by going on into the Advanced class, or remaining for another session in the Elementary Class of Design, as I cannot too strongly urge upon students that it is not by one or two flashy, or perhaps even clever designs, made in a single session, by which their work will best be judged, or that will be of most value to them, but by carefully giving their attention to the smallest details in design, and methodically following on their work stage by stage for two or three sessions.

"Do little things now," says a Persian proverb, "so shall big things come to thee, asking to be done."

It is no small thing for students to be able to get the advantage of criticism upon their early work freely and ungrudgingly given by many of the well-known artists whose names appear on our Visitors' list, and I cannot too strongly advise them to get as much out of those Visitors as they possibly can, while they have the chance.

I think those who were present at the first meeting of the Studio on October 11 last year will have appreciated the innovation of opening the session with short, informal addresses to students, when Mr. Aston Webb and Mr. Cole Adams so kindly gave us their valuable support. It is not too much to say that this meeting inspired very genuine enthusiasm amongst the students, old and young, and that Mr. Aston Webb's useful hints on planning,* and warm and sympathetic remarks in reference to the Class of Design, will long be remembered by all who heard them.

While mentioning Mr. Aston Webb's name, I cannot refrain from referring to the well-deserved honour bestowed upon him by the Royal Academy. No election made by that body has ever been more popular in the ranks of the Architectural Association than that of our past President and warm supporter, Aston Webb, and no congratulations offered to him are more sincere and hearty than those offered by the members of our body.

I hope that the work of the present session will be opened in a similar manner, and I am glad to be able to state that Mr. Ricardo and Mr. Seth-Smith have kindly consented to give us their help on Tuesday next,* October 10, by short, practical, descriptive addresses.

While referring to the Studio work, which has been so thoroughly and ably carried forward by Mr. W. G. B. Lewis, assisted by Mr. De Gruchy, I must commend to the notice of students the admirable system of time sketches started during the last session by Mr. Lewis. These sketch designs, made under the direct supervision of the instructor, will be found most valuable, especially to younger students. The system will help in giving them method in their earliest attempts at design, and so render their future efforts in design more direct and effective.

Encouraging as the students' work in the Studio has been, there is room for improvement. The danger of working with no higher aim than to make drawings sufficiently good for qualification in the Royal Institute of British Architects' examinations or for admission to the Royal Academy is a real one; and the falling off in the attendance towards the end of the session shows a lack of appreciation, on the part of some students, of the greatness of the work that lies before them, and of the necessity of thoroughness and methodical perseverance in their studies.

Another branch of the Studio work that is not receiving the support of students in a manner which the importance of the subject demands, is the Modelling class. This is all the more extraordinary, as we still retain the valuable services of our old friend, Mr. F. W. Pomeroy, as instructor, who, as I said when addressing you last year, is second to none in his art. I will not again repeat the sentiments I previously expressed as to the immense value of modelling to an architect. It needs no further argument on my part to justify its value in the eyes of all true artists in our ranks.

But the committee have, as usual, gone to the root of the matter, and recognising that the argument of £ s. d. is found to be the most clinching of any, have decided to reduce the fees for the Modelling class for students attending the Studio to less than one-half the original fee, while any other member of the Association can now obtain the best instruction in modelling at the nominal fee of 12s. 6d. Surely a valuable class such as this will not languish for members during future sessions?

With regard to the lectures, I am glad to say that the average attendance has been well maintained, and that we are fortunate in retaining the valuable services of our many able instructors. In concluding my remarks upon the practical part of the work of the last session, I perhaps ought to mention the fact that the Land Surveying and Levelling class was not held, owing to the small number of entries. But, considering the multifarious subjects the architectural student has to face nowadays, one is not surprised that this practical subject of land surveying should, in some sessions, not receive the support it deserves. It must, however, be evident that to a large number of architects a knowledge of the subject is most useful, if not essential. An excellent new level has been purchased for the use of future members of this class.

With regard to other useful branches of work, I should like to call attention to that of the Camera Club. It was decided last session to commence a really useful collection of lantern slides of architectural subjects, which would not only be useful to lecturers, but also to readers of papers, in illustrating their subjects. Now, any members of the Architectural Association who are amateur photographers, can help us greatly, by either sending to the Secretary of the Camera Club any good negatives they may have of ancient buildings, or architectural detail; or still better, by sending lantern slides already made. We are anxious that the collection shall be very comprehensive in character, and at the same time good in quality. All negatives or slides sent will go before a sub-committee for careful selection. The great value of such a collection will at once be apparent to any who have had experience in the difficulty of obtaining suitable slides to illustrate papers on art generally, and architecture in particular.

It will be noticed in the Brown Book that certain alterations have been made with regard to prizes. Medals will not be quite so common as before, and will, consequently, perhaps be more valued—and a larger number of book prizes will be offered. While speaking on the

* See our issue for October 15, 1898, page 344.

* See page 345 of this issue.

subject of prizes, I feel that I must call attention to the fact that for some years there has been no competition for the prize of 10*l.* kindly offered by the Architectural Union Company, for the best set of measured drawings. Some years ago this prize used to be competed for regularly, and the reason for its being neglected now is quite incomprehensible to myself and others. A more useful subject for competition it would be difficult to conceive. The Architectural Union Company do not offer this valuable prize just for the fun of the thing, we may be sure, and the Company has been very generous in allowing the conditions to be altered in the most liberal spirit; we cannot, therefore, be surprised if the offer of a prize is withdrawn should no competitors be found during the coming Session. I do hope I have only thus to bring the matter to the notice of students to secure a good competition in future.

The review of the work of the Session would be quite incomplete without some mention of the social side. We have to thank the members of the Entertainment Committee for giving us a practical demonstration of what an excellent entertainment the members of the A.A. can produce. Not only was the last soirée a great success, cleverly conceived, and brilliantly carried out, but it was free from anything that the most carping critic could term vulgar or even commonplace. Nothing but good can result, I feel sure, from this healthful relaxation at our annual soirée.

It will be noticed that the Cycling Club has been resuscitated, and the runs will in future be made as far as possible in connexion with the summer visits and Camera Club.

Perhaps the most useful addition made in connexion with our social work is the new Common Room. I do not quite know whether to describe this little addition as a foretaste of better things to come, or as an apology for not yet getting something better. But this I can say, that the gentlemen of the Committee, without in any way abating their individual and collective efforts to find suitable new premises, have fully realised the difficulty of so doing, and in taking and furnishing the new Common Room have not only had the immediate comfort of the members in view, but the business interests of the Association, as with the front room the present premises have a commercial value, which would render the disposal of the lease, at short notice, a comparatively easy matter.

My most sincere wish, when I last addressed you, was that during my year of office I might be able to announce that new premises had been obtained, which would not only give ample accommodation for our regular work in studio and class rooms, and for our social requirements, but would provide demonstration workshops for the craft side of our work. I will not weary you with again pressing my views on this subject, except to say that no stone shall be unturned and no time or energy stinted by myself during the present session in trying to satisfactorily solve the difficult question of new premises. I shall not, I think, be divulging committee secrets when I hint that we have a large scheme at present under consideration, but I have had too many disappointments under this head to be over sanguine of success in the present instance. It is, I fear, too much to hope that it may fall to my lot to announce the good news that new and worthy premises have been found, but I sincerely trust that such an announcement may be made early in the new century.

The New Century—what a strange influence these purely arbitrary divisions of time seem to have upon our minds, and even upon our actions—an influence that I cannot but think is for good in many ways! It may be from sentiment or from mere habit, or it may be from a sense of duty or discipline, but from whatever cause, the fact remains that there are few who do not feel in some measure the influence of even a passing year—yet how indefinable and paradoxical is that thing we call time: the past is gone, the future has not come, and what we call present drifts into the past while we try to define it. Being what it is, however, the periods into which we divide it, mark, as it were, vantage points from which we can look backwards and study, as in a book, our successes and our failures.

Gentlemen, this session of the Architectural Association is, as it were, a bridge between the nineteenth and twentieth century, and as we draw near to the apex of that bridge or line that divides the two centuries, who is there amongst thoughtful men who will not tarry a moment to look back on many wonders wrought during the last century—wonders in science that for better or for worse have transformed the face of the whole world; wonders in literature, poetry, and music that have left the world far richer than they found it; wonders in art that will influence artists for centuries to come; wonders in architecture—yes, I think I am safe in saying even in architecture, if I add the words "for better or for worse." But of this more hereafter. In all these wonders of the nineteenth century have we not infinite scope for reflection, study, and encouragement? Most strongly would I advise our students not to content themselves with only reading that which immediately concerns their own particular branch of art. If they would learn what real industry and perseverance means, and what it has accomplished, if they would know what little things have led to great results; in short, if they would learn the highway to success in life, let them, as a relaxation, read the interesting biographies of those who have brought about the wonders I speak of. The very word biography is, I fear, enough to frighten most of us, but I know of no more certain, and in the end more pleasant way of being helped forward in our life's career than learning how others have gained success and lasting renown through their own perseverance and energies in the face of seemingly insuperable difficulties—and above all, what have been the great motives and incentives that have guided them in their life and actions.

But to return from the general view of progress in the nineteenth century to the more limited sphere of our own beloved art, what a strange and interesting page in the history of the century might be written thereon! The task of writing it will probably be undertaken by some enterprising author before long, and if carefully done, there should be ample material for an extremely useful and interesting volume, although the difficulty of following through the various fashions and heterogeneous vagaries of the last hundred years would, I fear, be great; but if episodes in the lives of the leading architects who have gone before, but left the stamp of their genius on many buildings, great and small, throughout the land, could be collected and incorporated, such a volume would, I feel sure, be much appreciated.

The danger, of course, for any one reviewing the earlier work of the century is that we are too apt to judge work from our present standpoint. This danger becomes apparent even in ordinary conversation, as so few seem to be able to make allowance for the wholly different state of things existing, architecturally, in the earlier part of the century, and condemn those whose names, in their day, were looked up to by all.

Are we, in these days, so sure of our own ground that we can afford to severely criticise a style of work that does not exactly coincide with our enlightened views of style? I am confident of one thing, that if we as a rule tried to find out the good points of a brother architect's work, instead of finding a kind of pleasure in picking out what we conceive to be the bad points, it would be better for ourselves and the profession at large. In saying this, I do not for one moment wish that proper criticism should be curbed in any way. There is, of course, criticism and criticism. For instance, a bad plan, misapplied ornament, palpable ignorance in detail, and bad proportion in building, poor construction or bad workmanship of any kind, &c.—in these cases severe criticism is most desirable, and even helpful, in that it makes one remember what to avoid. But there are few buildings that one takes the trouble to visit that have not some good points in design or planning. Try, then, and find out those good points, and put away the bad ones as much as possible, on the principle that "you never touch mud but some sticks." There are numerous good points to study in the lives and works of the many able architects of the century.

Architecture, as a great art, was in a measure dead in England at the commencement of the century. In what may be called the stucco period, a bastard Classic and Gothic style was the order of the day. What seemingly insuperable difficulties had to be faced by men who longed for a better state of things! What study, energy, patience, and enthusiasm was necessary to overcome the difficulties and prejudices existing! Who is there amongst us that will refuse to admire the pluck and perseverance of the early pioneers in the great cause of the raising of our art to its proper pedestal?

Of course, with much of the work done in the early stages of the great architectural revival we can have but little sympathy, but we can at least appreciate the motives that undoubtedly inspired men to aim at a higher ideal than was then prevalent. It would be hard to overestimate the enormous influence that such books as Rickman's attempt to discriminate the styles of architecture in England, first published in 1817, together with the early publications of Parker, and followed by the writings of Sharpe, Paley, Pugin, and Brandon, have had upon the architectural history of the century.

The earliest of these works prepared the ground for the great Gothic revival that followed in the forties and following decades. We must remember, however, that this great revival was not brought about by architects only: it came, like other great movements, in answer to needs and requirements of the times; it moved concurrently with the great religious revival that commenced at that period; it took firm root in the great seats of education, our universities, with the result that it influenced the minds of both clergy and laymen, who then took up the study of architecture with a thoroughness and zest that would shame many a student of the present day. Their heart was in the work, educated minds were stirred with a warm enthusiasm at the idea of the revival of what, in the truest sense, might be termed our national architecture. With such able men as Barry and Cockerell living, the best traditions of Classical work were not likely to be lost, but it is the great Gothic revival in its various phases by which the nineteenth century will be most closely remembered architecturally. It has lately been the custom to talk slightingly of this revival, and of those great and able men who guided its destinies. But, gentlemen, to do so is neither just nor generous, nor wise. The underlying principles that prompted such men as Rickman, Parker, Pugin, Paley, Scott, Street, Burges, Butterfield, Pearson, and others too numerous to mention, in their writings and their work, were of the highest and noblest character. These men spared neither time nor trouble in trying, by means of the most careful study of detail, to get into touch, as it were, with the artists who in past ages had left us buildings of such surpassing beauty.

We may quibble and find fault with the doctrines of the early purist, who, in his enthusiasm to truthfully follow the best detail of mediæval times, fixed arbitrary limits of right and wrong and good and bad in styles, yet in doing so he was only working on the same lines as the purely Classic student, who is not content without giving verse and chapter for the proportion of every column and detail used. As in most revolutions, men are carried further than originally intended, with consequent injury to the cause they uphold, so undoubtedly by the Gothic revival much irreparable evil was done by the excess of enthusiasm, under the name of restoration, with the same detrimental effect to the cause they held dear. But the first principles of the originators of the movement being essentially good, much good was bound to result from it; and there are few architects living whose work has not in some way been influenced for good by the great minds that were connected with the Gothic revival.

Fortunately the arbitrary shackles of style no longer bind us to rigid regularity of lines and detail. Men of great power and genius, whose early tuition was received in the Gothic school, have been amongst the first to lead the way in originality of thought and design, such as the late John Sedding, for instance. I have purposely avoided mentioning the names of living architects, amongst whom there are many worthy successors to the genius of the past, but I cannot refrain from mentioning one whose early training was also in the Gothic school, and whose work has had such untold influence on the domestic architecture of this century—I mean Mr. Norman Shaw. A study of his past and present work is to my mind a wonderful object lesson in development, but from first to last, whether it be in domestic, public building, or church design, always powerful, always thoughtful, and always artistic.

The hard-and-fast conditions of style having

been, by a sort of general consent, removed—what has been the result upon our art? Is the result satisfactory? In some respects, yes, in that the minds of clever men are given a freer scope for originality, or an eclecticism that is charming, from the very boldness and knowledge it displays. In many respects, no, in that it gives an excuse for ignorant and badly educated men to thrust upon us such architectural abominations as have lately been allowed to disfigure some of the best streets of the metropolis under the false name of originality and eclecticism. Emerson says somewhere—"Great licentiousness treads on the heels of reformation"—and in architecture we cannot claim exception to this rule.

But in spite of the glaring and vulgar designs that too frequently crop up in our midst, I cannot agree with those who say that the architecture of the day is in a hopeless state. On the contrary, I think from the energy and enthusiasm that is being displayed on all sides in art generally we may take a very hopeful view of the future. Speaking generally, the design and planning of our public and private buildings show a great advance in many respects. Our churches are no longer slavish copies of Mediæval work, and many of our houses and their decorations show an honest and often successful striving after better design in all that surrounds us.

But there is one class of building which, from its position and acres of ground that it covers, has during the present century assumed a far greater importance than is its due. I mean the modern villa or suburban residence, built by speculative builders, that surrounds us on all sides. What a terrible legacy of ugliness and bad building shall we leave behind, what a wilderness of worthless bricks and mortar! The demands for this class of building caused by the new kind of life in the present century have, of course, had to be met, but, artistically speaking, how unequal we have been to the task of meeting those demands! How far we, as architects, are responsible, is a question that it would be impossible to answer; but this is certain, that if we compare the ordinary present day suburban house with a similar class of work carried out even in the last century, the comparison is, I fear, by no means favourable to us.

The eighteenth century builders, as a rule, did not sacrifice good building to tawdry ornament. Their buildings were generally substantially built, and even if at times commonplace, were, at least, quiet and reserved in design, and seldom, if ever, bespattered with the ghastly shams—vulgar terra-cotta ornament and worse than worthless carving. The modern house of the kind is too well known to all to require any description. It assails us in all directions, not only in the suburbs of London, but in the neighbourhood of all our large towns. Nay, more, it is a disease that is contagious, and even the beauty of our homely villages and country roads is disfigured by its unwelcome presence. I do not say that this class of building was always good in past centuries, or is invariably bad at the present day; but this I do say, that there never was a time in which all that is true and good in building, and all that is pure and best in our art, was assailed by a more dangerous, insiduous, and potent enemy than the demand at the present day for cheapness and showiness in our buildings, and the apparent indifference of the general public as to the artistic merits of the houses they live in.

This mass of dreary ugliness that most of our people have to live amongst must act and re-act upon the mind and do incalculable harm to the cause of art. The question is—How is the evil to be grappled with? 1st. I think by setting the example of quiet reserve in our own designs and avoiding as far as possible the outward display of ornament; and when we do have ornament, seeing that it is the very best of the kind that we can get—and, above all, by never under any condition sacrificing solidity or the use of the best materials for the sake of being able to get more ornament in our buildings. 2nd. By doing everything in our power to influence landowners, when leasing or selling property for building purposes, to insist on the insertion of a condition as to some sort of supervision by a qualified architect. What an opening there is for early practice in this field of design for some of the aspiring members of our School of Design, and judging from some of the designs submitted last session, our suburbs would be far more interesting if enlivened by designs by even some of our students.

It is not necessarily an expensive house that we desire or ask for. On the contrary, if the demand for small houses is to be met, every reasonable and proper economy must be most carefully studied. I can well imagine a rough cast cottage being quite as good in design as a stone building five times more costly. Our aim should be to demonstrate to the public that a comfortable, artistically designed, and substantially-built house, does not necessarily mean a building that is more expensive than the ill-built erection at present so common, in which so much money is frittered away in utterly vulgar ornament. And here I would especially recommend students to really study the requirements of this class of house, with the view of making designs that shall be at once simple, reserved, and artistic in treatment, and economical in construction; they will find it invaluable as practice, and it may be of the greatest use to them in their future career.

We architects must be ready to grasp problems in design, whether they be great or small, and many will, I think, bear me out when I say that some of the seemingly small problems are often the most difficult to solve. Amongst other curious experiences, I had once a client who wrote asking me to design a lodge, something in the style of Kensington Palace or the Versailles; a problem I met by sending a design which apparently satisfied her, but how far it agreed with her ideas of Kensington Palace or the Versailles I never found out.

In my address last year I expressed the wish that artists and architects could be brought into closer union and sympathy with each other, and during the last years of the nineteenth century the great necessity for this union and sympathy has been very strongly brought home to us. This is neither the place nor time to enter at length upon the subject of the thorny discussion in reference to the decoration of our great metropolitan cathedral. But as the subject is of such great interest to architects and students alike, some allusion to it becomes almost a necessity. The objects of the opposition that we as architects have offered to the work of decoration must not be misunderstood. I think I am right in saying that most of us desire that our great churches and national monuments should be decked with the very best of all we can offer in art, be it in colour decoration or in sculpture. We must therefore beware that our opposition to the present method of decoration is not made use of by those who would denude our churches of all that is beautiful in decorative and sculptured art, and give us in return the bare whitened sepulchres of a past generation. It cannot be made too clear that our opposition is on purely architectural grounds.

I am convinced that the Dean and Chapter of St. Paul's when they started the work of decoration had but one wish, that what they did should be of the best; and I am further convinced that Sir William Richmond entered upon this great work in the same spirit. But, gentlemen, surely the first qualification of any artist entering upon such a work is that he should be in complete and absolute sympathy with the architecture of the building he proposes to decorate. The results have proved that this is unfortunately not the case. Is it then unnatural that we should raise our voices against the injury done to the work of one of the greatest architects England has ever seen? As architects surely it is our duty to do so, and as Englishmen we have a right to ask that the walls of our great national monuments shall not be treated as mere spaces for artists, how ever clever, to experiment upon.

I believe, however, that there is a growing sympathy between artists and architects, and the more we can do to foster that feeling the better it will be for art generally.

I could wish for the same kind of sympathy, in a different way, between engineers and architects. It will be seen from the Report of the last Session that in January, shortly after the publication of the design for the proposed new Vauxhall Bridge in the *Builder*, the Committee passed a resolution, stating that they "viewed with the utmost concern the manner in which it is proposed to rebuild Vauxhall Bridge." This resolution was afterwards approved by acclamation at an ordinary general meeting. Now, gentlemen, the Association does not concern itself, as a rule, with matters outside the immediate sphere of its own work, but representing as it does nearly 1,300 members, all of whom are deeply interested in the welfare of art and architecture, it could not look on with indifference at the proposal to disfigure our grand river with another ill-designed bridge. Most of the bridges that cross that river now are a standing rebuke to us as a nation. One can only hope that the County Council will use its powerful influence in securing the revision and improvement of the design before it is too late. Sir Alexander Binnie lately stated at a public dinner, amidst applause, that he had "visited and studied all the well-known bridges in Europe, and that, as a result, he hoped to give them one of the finest bridges of modern times." But I would point out that the study of all the bridges in the world will no more teach an engineer architecture, than it would teach an architect engineering. What we desire is, that in such a work as that in question, involving an expenditure of a large amount of public money, and affecting as it does greatly the appearance of our grand water-way, architects of eminence should invariably be consulted as to the architectural work, while the constructional work could, if so desired, be placed in the hands of well-known engineers. In such works in Paris, architect and engineer work together as a matter of course—why not in London?

It is no pleasant task to criticise the work of men of such acknowledged ability as those just named, and we do not presume to do so within the province of their own art or science; but it would be simply cowardice on our part to refrain from criticism when they step into a sphere of work that is not their own, of which they have little knowledge, and with which they apparently have little real sympathy.

Gentlemen, I must apologise it my brief review and comments of the work of the nineteenth century have seemed too long for an address of this kind, but, as I said before, standing so near the dividing line between the old and new century one is almost bound to look back and try and learn from the successes nd failures of the past, how best to advance the interests of our great and noble art in the future.

For the last half century the Architectural Association has been working with one pure and high aim—the advancement of architectural education. It is a voluntary Association, dependent almost solely on voluntary help and energy; a free and independent Association, unfettered by ties of professionalism or social class ties of any kind; a social Association, in which architects, young and old, rich and poor, can all meet together on one level, in social intercourse and good fellowship; and withal, gentlemen, I am glad to say, a successful Association.

What, it may be asked, has been the lever of success? Has it been by capital or financial help given by persons or public bodies interested in educational work? In no sense, with the exception of the yearly grant of £100 so kindly made by the Royal Institute of British Architects, and the very generous donations given by some well-known architects at the launching of the new scheme of education.

No, the lever of success has been the sincerity of purpose, the unselfish devotion to the cause, the single-hearted aim and warm enthusiasm of its originators and supporters.

As long as men are found to help in carrying forward the work with the same high aim and enthusiasm, so long will the Architectural Association flourish and carry forward its great work with increasing vigour and helpfulness.

We, the elder members of the Architectural Association, have reason to fully recognise the value of both the educational and social work of the Association, but under the new system of education its value has increased tenfold; and it is for you, the younger members, to prove that its value is still greater in the future than in the past. It is a healthy sign that so many of our older members continue their membership, and I again appeal to all who are interested in the objects of the Architectural Association to join our ranks and help us by their membership and advice. When the members of the last excursion were visiting Bryanston, Lord Portman, seeing some elderly gentlemen in our party, asked me if the Association was composed entirely of students. I answered yes, that in our party of twenty-eight, there were students whose ages ranged from nearly sixty to eighteen, from men who had been in practice for twenty-five years to pupils in their offices. So comprehensive are he ranks of the Architectural Association!

While mentioning the excursion, I must express surprise that more members do not take advantage of it, for a more useful and enjoyable week, both architecturally and socially, it would be hard to imagine.

In drawing this address to a close, I would ask the younger students of the present day to remember how great is their responsibility. Upon them, in a great measure, will depend the making or marring of the architecture of the twentieth century. It is impossible to foretell what their chances and opportunities may be, and equally impossible to foresee what will be the characteristic style of work of the century. But, be sure of this, there is no broad highway to success that is not founded upon the work and experience of past ages. We are not Gods that we may create something out of nothing, but creatures who must make the best use of the materials and gradually growing knowledge vouchsafed to us by a bountiful Creator.

Experience teaches us that to succeed at the present day a man must concentrate all the faculties of his mind on one great purpose, and an unswerving tenacity of purpose. A great purpose is cumulative, and like a magnet attracts all that is kindred along the stream of life.

The question is, Can you honestly say that you do, or that you wish to, make the art of architecture a great purpose in your life? If so, and you work conscientiously with that aim, I can safely prophesy your future success and happiness; but, if not, you had far better turn back, and give up all idea of becoming an architect. At best, as I said on a previous occasion, it is a hard-worked and ill-paid profession, and if one's heart is not in the work, it becomes a mere existence without a soul. I do not for one moment wish to discourage those who are commencing their studies in the Art. Far from it. My one great wish is to inspire enthusiasm amongst stndents who possibly have not realised fully how great is the work before them, and how great is the need of working consistently with one definite purpose.

Believe me, I have no wish to make or exaggerate an evil. The evil I speak of—want of enthusiasm—undoubtedly exists amongst some of our students. Far too many make the end and aim of their work to qualify for the R.I.B.A. examinations. But good as I believe these examinations to be in many ways, you must not for one moment think that the passing of examinations will make you an architect in the truest sense. The key to the success of an architect is that his heart must be in his art.

Ruskin truly says: "Fine art is that in which the hand, the head, and the heart of man go together—the head inferior to the heart, the hand inferior to the heart and head." Thus it must be the heart that dictates your actions, or, in other words, real love of art for art's sake that must be your incentive to work.

I would that any words of mine could inspire enthusiasm amongst our present and future students—for enthusiasm lifts men out of themselves and the petty concerns of life, it gives life to that which is otherwise invisible, it imparts itself magnetically to others, and fuses all into one happy harmonious unity of feeling and sentiment, and it helps forward the worker and the genius alike. If, as Longfellow says, "Enthusiasm begets enthusiasm," then may I hope that my enthusiasm in the cause I am pleading may be imparted to you, and that your enthusiasm once fired may be imparted to others.

In conclusion, I will only add that if you love art for art's sake you will not be content with obtaining knowledge and success for yourself alone, but will take pleasure in imparting knowledge to others and thus helping forward, step by step, the great work of architectural education. I cannot end with better words than those of Shakespeare—

> "This above all, to thine own self be true.
> And it must follow, as the night the day
> Thou can'st not then be false to any man."

Mr. H. L. Florence, in proposing a vote of thanks to the President for his thoughtful and able paper, said he must congratulate him upon occupying the Presidential chair for a second year. And the Association, also, was to be congratulated in having secured for a second term a President who gave so much time and attention to, and who felt so thoroughly the interests of, the Association and worked so continuously for the furtherance of its objects. In listening to the President's remarks, and in applying the lessons of past times to our progress and instruction, he remembered that an old French architect, Philibert de L'Orme, once said that an architect should have three eyes, four ears, and four hands; but what would he have said of the architect of the present day? An architect was now expected to be proficient in several sciences, to be skilled in mechanics and in various arts connected with architecture—matters of which the simple architects of de L'Orme's days had no idea. He (the speaker) had not noticed any tendency on the part of architectural students of the present time to evolve those extra hands, eyes, and ears. The Association naturally gave its principal attention to the instruction of those who intended to pursue the profession of architecture; but he was afraid that many architects and others under-estimated the value of systematic education. He was convinced, judging from the benefits he derived from the Association and from what he had seen of the progress of those who had studied under it, that there was nothing so certain to aid one as the study in a society like the Association, where the students are helped and encouraged by one another. That method was far better than being left to work on one's own lines. As an example of a systematic course of training, such as the Association did in an imperfect way, he might mention the system which was pursued in France, and of which he had always been an advocate. As an instance of the great value of more study and more elaborate preparation than in England, he would mention the result of the recent competition for a University in California—one of the largest of modern works, in which architects of all nations were free to compete. What was the result? It was now announced that a French architect had won the first premium, and the whole of the designs favourably commented upon showed evidence of a French influence. He thought this was a matter which ought to cause reflection on the part of those who seemed to trust entirely to inspiration to produce an artist and architect. He was very glad to notice that the membership of the Association continued to increase, and that the Class of Design, which he always thought was the most pleasing and instructive of any in the Association, had met with such success last year. As to the President's remarks about criticism and to his hope that architects, in criticising each other's work would rather look for that which was good than try to point out any little point which they did not think satisfactory, he (the speaker) thought that in the present day the use and meaning of criticism seemed to be entirely forgotten. Criticism is not merely the capacity for fault-finding. Men appeared to consider themselves able to pronounce opinions, and appeared to think that that was criticism. What they said was generally a confession of a prejudice, and frequently showed ignorance. In the President's address, nothing had been more kind than the way in which he had alluded to those who are interested in the progress of architecture, and in his new year of office no better friend of architecture would be found than their President.

Col. Lenox Prendergast said he had been asked to second the vote of thanks to the President for his able address. He had never before heard an address that seemed so admirable or so much to the purpose. The President had appealed to them for enthusiasm, but where was the enthusiasm for architecture amongst those outside the profession which existed when Professor Freeman was a graduate at Oxford and when what was called "the Oxford Architectural Society" existed? Why were there so many miserable buildings in all our great towns? Why was the speculative builder allowed to destroy the beauty of our cities? He was afraid there was no one outside the profession to engender that enthusiasm and show the builders what to do, and it was for the members of the Association to do something in the matter. They should think how they might influence the man in the street and the builder so as to make them properly interested in architecture.

The vote of thanks having been heartily agreed to,

The President, in a brief reply, said he had done the best he could during his past year of office, and he would do his best again. As to educating the man in the street and the builder, the Association was doing all it could, and, no doubt, the work of some of the present students of the Class of Design would be productive of good in that direction. The class was a great success last session, and they hoped to make it a greater success this session.

It was announced that the next meeting will be held on the 27th inst., when a paper by Mr. Lawrence Harvey will be read, entitled "The Construction of Circular Stairs and Vaults."

The meeting then terminated.

ARCHITECTURAL SOCIETIES.

Architectural Association of Ireland.—This Association will hold its annual general meeting on the 17th inst. The classes of design and construction will recommence respectively on the first and second Thursdays in November.

Glasgow Architectural Association.—On the 3rd inst. (the President, Mr. John Fairweather) in the chair, Mr. Wm. J. Blain read a paper entitled "The Influence of Fashion on Architectural Taste." Reviewing the various styles from the Classic period onward, he pointed out that previous to the end of last century we found in the styles or fashions of architecture continuous growth and tenacious purpose, extending over long periods, brought to decay by political changes and revolutions of thought, but that with the birth of the present century we observed diminutive growths lasting but for short periods; the reason for this, in the author's opinion, being the decentralisation of culture, the spread of literature, and the study of modern languages and people, &c. The author pointed out that these diminutive growths, which had generally taken the form of revivals of various styles, as, for instance, the Classic revival, Early Gothic revival, the Dutch and Spanish revivals, and the modern Georgian, had not been without some lasting benefit to architecture, books having been written, buildings sketched, measured, and catalogued, and a vast storehouse of information accumulated of the various styles. The very mistakes of the revivalists had caused a deeper searching and insight into the spirit of old work, so that at last we possess the key to the ideal charm of those buildings, thus paving the way to a development of the styles on a broad basis. In conclusion, the author remarked that he had no sympathy with an art which recognised no tradition or styles, and that a building without style appeared to him about as uninteresting as a man without character.

COMPETITIONS.

Town Hall, Workington.—The first premium for competitive designs and plans for the new Town Hall for Workington has been awarded to Messrs. Oliver & Dodgshun, of Carlisle and Leeds, who will carry out the work. The second premium is awarded to Mr. T. Cook, architect and surveyor, Manchester; and the third to Messrs. Moffatt & Bentley, architects, Whitehaven.

BOOKS RECEIVED.

Practical Plane and Solid Geometry.—By Joseph Harrison, A.M.Inst.C.E.; and G. A. Baxandall. (Macmillan & Co.)

Inorganic Chemistry for Advanced Students.—By Sir Henry Roscoe and Arthur Harden, Ph.D. (Macmillan & Co.)

The Small Dwellings Acquisition Act, 1899. By M. Roberts-Jones. (*Western Mail* office, Cardiff).

Good Citizenship; A Book of Twenty-three Essays. Edited by the Rev. J. E. Hand. (George Allen).

The Construction of Roads and Streets. By W. H. Maxwell. (The St. Brides Press).

Fire Tests with Doors (Nos. 24 and 26 of British Fire Prevention Committee's Reports).

City Parishes and their Records.—A circular letter has been addressed by Mr. Deputy White to the vestries of the parishes in the City of London, suggesting that the vestry books of account and record should be removed to the Guildhall Library, where they could be inspected during the prescribed hours by all who are interested in their contents. In the case of St. Swithin's, and in that of St. Mildred's, Poultry, some parish books and documents have already been deposited in the Guildhall, and Mr. White's proposal—which does not extend to the registers—is under consideration of many of the vestries concerned.

HOUSE, ASPLEY HEATH, BEDFORDSHIRE.

THE house, of which we give a view and two plans, was erected for Mr. Arthur C. Plater, on a site in the pine forest near Woburn.

The material of which it is constructed is mainly red brick, the upper part of which is covered with rough-cast, and the roof is covered with Reading tiles, the whole of the woodwork being painted white.

The upper part of the short square tower in the entrance-court contains a staircase leading to the long gallery which runs the full extent of the front of the house.

The architects are Messrs. Brewill & Baily, of Nottingham. The perspective view of the house was exhibited at the Royal Academy this year.

THE ARCHITECTURAL ASSOCIATION :

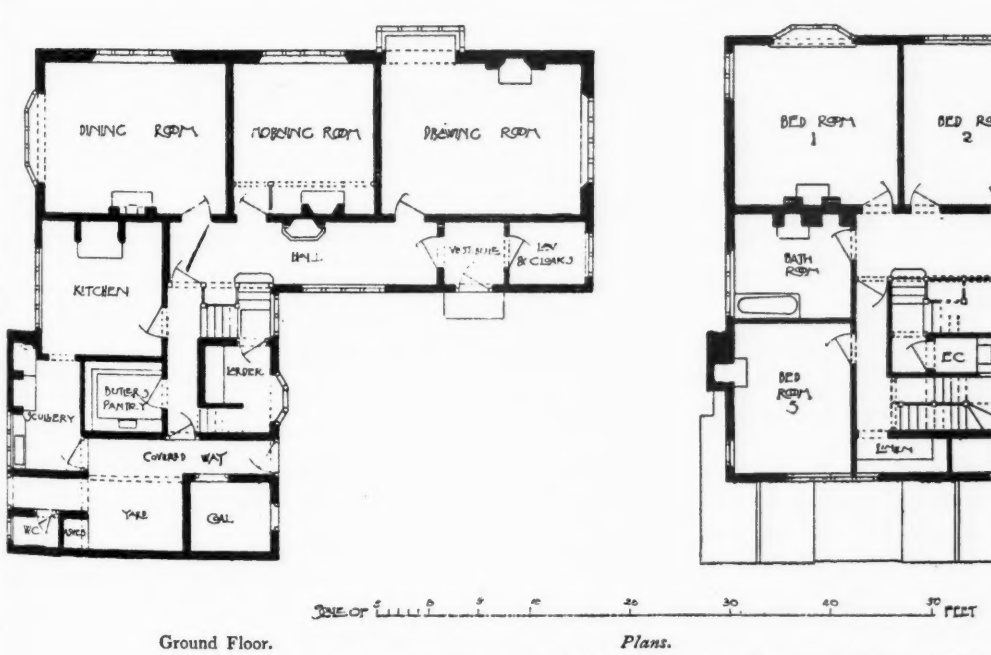
THE SCHOOL OF DESIGN.

THE preliminary meeting of the School of Design of the Architectural Association was held on Tuesday evening, at No. 56, Great Marlborough-street, W., when the President of the Association, Mr. G. H. Fellowes Prynne (who presided), Mr. W. H. Seth-Smith, and Mr. Halsey Ricardo delivered short addresses.

The Chairman, in opening the proceedings, said that he desired to address his remarks to those students who had but recently joined their ranks and those who had not been members long. But first he must warmly congratulate the Association on the work of the School of Design. A year or two ago there was noticeable a falling-off in the numbers and the work of the school, but during the last session in both respects there had been a great improvement, and the work turned out by the students was of a very satisfactory quality ; he felt sure that the Visitors in going through the designs must have felt that most of the students had high ideals in their work.

He should like to call the attention of new students to the value of an association like theirs. It was not an association of to-day, but it had grown gradually from the needs of architectural students, and it was connected very closely with the early part of this and even the last century, although it had existed only some fifty-three years. Professor Kerr, their first President in 1847, was still amongst them, and Mr. T. M. Rickman, their President in 1854, the writings of whose father (born in 1777) had had such an influence on architectural thought, was still an active member ; and he, the chairman, felt it was rather remarkable that in this way, by two generations, the Association was, so to speak, connected with the eighteenth century. It would be invidious of him to mention the names of some of their principal members—men who had been Presidents, Vice-Presidents, and Secretaries—but he might say that they had had architects in their ranks of considerable standing in the profession. One name he felt bound to mention, viz., that of Mr. Norman Shaw, and he felt that in their ranks they still had some of the elite of the profession, men who had gone through their classes and had worked their way to the front.

The first question he wished to ask those who were about to join, or who had just joined, was, why they were taking up such a profession ? Was it merely for love of the work ? He did not suppose that any of them could have that love for architecture which some of the older members of the profession had ; but he was afraid that many of the students of the day embraced the profession with the sole idea of it being nothing more than a profession, while others were led on by circumstances, and without possessing any actual love for the work ; their desire was simply to make money. That was the wrong spirit in which to follow the calling of an architect ; it brought architecture down to a mere trade—although he did not despise trade at all ; but architecture was not a trade, but was an art pure and simple ; therefore they should consider that there was a higher aim than making money in entering such a profession ; they should aim at working for a great national end and good—that was to say, the improvement of the art of architecture in England. It was a very high aim, and he hoped that those who were entering the profession would grasp the situation before they had gone very far, and if they did not feel an enthusiasm for the work, to give it up. Any other course would neither be good for the art nor for themselves. Archi-



House, Aspley Heath, Bedfordshire.—Messrs. Brewill & Baily, Architects.

tecture was not a well-paid profession, though it brought happiness to the man who did good work—a happiness which in any other work it would be hard to equal. That it was not a well-paid profession was proved by the fact that even the seniors could not afford to pay the assistants as they should be paid.

Did they, he would ask, hope to experience that real love for architecture which he had referred to? That was the point for them to consider. An ideal architect was one who not only took up architecture by itself, if it could be so taken up; he was a man who studied thoroughly painting and sculpture combined with architecture. They might say that that was too idealistic, but that was his view; and an ideal building was one which combined architecture, painting, and sculpture in one harmonious whole. If it should be too high an aim to hope to accomplish perfection in all the arts, it was at least necessary for every architectural student to grasp thoroughly the idea that to become a true architect he must understand the principles of painting and sculpture; equally it was necessary for the painter and sculptor, if they were to excel in their art, to thoroughly understand the principles of architecture. The painter and the sculptor were both called upon to realise what architecture and architectural detail are, so as to be able to sympathise with architectural work when called upon to decorate it. The problem of the architect, of course, was to deal more with masses and proportion, light and shade, and general effect; but, at the same time, he must know how to apply the other arts and for that reason he (the chairman) most strongly advised them to read books like the Lectures of Sir Joshua Reynolds, and anything which made them acquainted with painting and sculpture and the other arts related to architecture. Architecture was more complicated than the other arts; it was more utilitarian. Architects had to study many things which did not seem to apply to an art actually—details of drainage, for instance, which seemed to lie absolutely outside the scope of art; but they were necessarily included in the curriculum of an architect's education and students must feel as much enthusiasm as possible for such subjects and make up their minds to study them thoroughly. Architecture was, generally speaking, useful first and beautiful afterwards.

It was taken for granted that every one about to take up the study of architecture had at least some artistic qualifications: he liked drawing, for instance, though he did not quite know why, and therefore it was to be hoped that although he might not at present be inspired with a feeling of the greatness and the beauty of architecture, yet, with that wish to improve and develop what was in him, he would gradually get that enthusiasm which was wanted in young architects.

Then the first object of students should be to make themselves absolutely proficient in drawing—not only in freehand drawing, which was too often the case, but in geometrical drawing as well. Proficiency in drawing meant very much more than it seemed to mean, for there was no greater danger to young architects than the inaccurate and careless way in which they sometimes drew—especially when studying old work. They did not study and draw detail and construction as they should—the why and wherefore of every joint and every bit of ornament—why a piece of ornament, for instance, was so deeply undercut in a certain position. Instead of merely drawing ornament from the cast, as was often done, they should endeavour to really understand the reason for the undercutting or otherwise.

The next point was the absolute necessity for the thorough study of construction in measuring work. The value of measuring and studying the best work was enormous, and he could not help remarking again that it seemed extraordinary that the prize offered by the Architectural Union for measured drawings of old work had not been competed for for about five years. The subject was a most interesting one, and he should have thought that without a prize it would have been their desire to measure old work, though with the prize there was an excellent inducement to do so.

Then there was the study of planning. Wherever they went they should try and find out the good points of a plan and not confine themselves to finding fault with the detail. There were sure to be some good points in almost every plan if they would but look for them, and students should look for the good in ancient and modern work, rather than for the bad points. There were too many critics, or would-be critics—men who criticised little points of detail, but never looked at the plan, at the real construction of the building. They should make it their object to find out the good points in work. At a meeting of the Association once, a lecturer was pointing out good points in the plan of the Natural History Museum, and some one else called out, "How about the gargoyles?" The reader of the paper replied, "We will come to them presently; we are now considering that small detail, the plan." The lecturer's aim and object was to show the excellence of the plan and not to criticise the detail, and he (the Chairman) admired his retort.

Then their study should be thorough. There was a danger in proficiency in drawing—the danger of making pleasing drawings which would be bad and unworkable in execution. The power of making attractive drawings was a most useful means to success in life of an architect; but it was a distinct danger and might do immeasurable harm—was, in fact, suicidal to the future career of the young architect—when the drawings were false, and prepared so as to hide up defects in design. They should make it a *sine quâ non* that their drawings should be absolutely true—no dressing up and cooking! A client was apt to think, when the actual building was defective and so unlike the effective drawing, that the architect could make pretty drawings, but could not design a building.

He strongly advised them to study the practical side of building. So many students studied with only one idea—the examination to be passed, forgetting what was the basis of all that. The examinations would not make such men architects; it would make them book architects, and fill them with book knowledge and knowledge of drainage and theoretical construction, but nothing more, except to qualify them to put some letters after their names. He fully agreed as to the value of the examinations, believing them to have been an incentive to would-be architects to pursue their studies; at the same time there was the great danger of thinking that everything had been done when the examinations had been passed, when, as a fact, the successful students had only just begun their studies.

While studying, they should take every opportunity of seeing practical building and detail, and of seeing the way in which work is done. That was the way to grasp quickly actual working problems. Students often visited buildings in a dilettante way, and seem to think that the study of the mechanic's work is beneath them. And yet there was so much to be learnt by the student who went with his eyes open and studied thoroughly the work—tipping the foreman, perhaps, if necessary, and getting him to explain certain points was often useful. It was only by getting in touch with the work and workmen that the young architect could get to thoroughly know all about the practical matters of construction and become able, if necessary, to instruct the builder sometimes. There was too much book-work architecture, which would not be to their advantage in the end.

It might seem unnecessary to go on saying, "Don't give up the study of old work," but unfortunately it was being given up. They should not study old work with the idea of repeating it, but so as to fill their minds as a store-house with the best that other men had done, and so as to see what influenced the old builders. They should not regard themselves as little kings, so wise as to discard the past, but should learn from the past and make their work as original as possible. Architecture could not be absolutely original, and there should be no objection to studying the best work of past times. They should build on the foundations of all that was best in the past.

He thought it was very necessary that an architect should study modelling. An architect would feel the advantage of being able to model himself when he realised that it was only in that way that he could find out the true effect of ornament. Every architect should be able to model, moreover, so as to be in touch with the sculptor.

As to ornament, he must warn them against misapplying it—that throwing on of it and patching it on here and there. Let them keep free of that, and let there be more simplicity. Ornament was not bad in itself, of course, but it was so terribly misapplied now. Places for ornament should be designed, and spaces should not be filled with ornament just for the sake of having ornament. It should grow out of the design, be an intrinsic part of it; otherwise, there was only patching and often vulgarity.

As to the greatness of the architect's work, it was hardly necessary to say much as to that, for architecture spoke in one sense more than any other art; it spoke of national depravity, national greatness, national wealth, and national poverty. It must go on telling its tale for good or evil for centuries, and that was once the good, and the evil, of their work. The evil was that it left others to criticise the work of the day, and the good was that it might lead others to do good too, for a great building must exert an influence for good. No one could have entered some of our cathedrals, churches, or other large public buildings without being influenced by a feeling, as it were, of being lifted out of oneself. He advised them to aim as high as they could, and then their lowest work would not be very low.

It was hardly necessary to say that industry and enthusiasm were absolutely necessary in all work, architecture especially. In painting and sculpture there were definite lines to go on, but in architecture they were complicated in many ways; there were so many things to study, independent of its art side, that industry was absolutely necessary. Sir Joshua Reynolds said of industry, "If you have great talents, industry will improve them; if you have moderate abilities, industry will supply their deficiency. Nothing is denied to well-directed labour; nothing to be obtained without it."

Another point was as to failure. If in real earnest, they should not be discouraged by failure. He remembered the saying of a great physician: "If I could get a physician who would be brave enough to give me a history of his failures, I should be a clever man," and Watts, the engineer, said that the thing he most wanted in his studies was a history of failures in mechanical engineering. There was no doubt that we learnt by our own failures.

> If what shone afar so grand
> Turn to nothing in thy hand,
> On again, the virtue lies
> In the struggle, not the prize.

Thoughts on the Application of Architectural Ornament.

Mr. W. H. Seth-Smith then addressed the meeting on the subject of the application of architectural ornament. He said:—"It is a platitude to say that art knows no rules, that feeling is everything. We shall find, however, that although the instinct of a great painter is his best guide, his exceptional ability will have led him to have analysed the works of his great masters, and to have discovered in all of them certain leading principles in their composition, chiaroscuro, or schemes of colour; and that he will, in process of the creation of his own works, be governed, however unconsciously, by these principles, and in the event of criticism may apply them as both a test and as an apology. The Presidents of our Royal Academy have at any rate thought it worth while to lay down laws for the guidance of their students.

Be this as it may, and we may always safely leave genius to take care of itself, we are not all geniuses, nor is it possible, whatever tests we may apply, to exclude from our artistic calling men who have very little capacity for feeling in design; hence the importance of ascertaining whether any rules exist by which we may prevent great errors in the application of ornament. It is where art teachers have gone beyond this that more harm than good has been done, and it should be the constant aim of those who organise and control the Architectural Association curriculum to keep this essential point to the fore, and of the students to guard zealously.

It would be waste of your time and of my own to traverse again the ground so ably covered by recent lectures to which you have listened, in which men of light and leading have pointed out that architectural ornament must be wholly governed by its surroundings. Its proportions, character, and style should be suggested and controlled absolutely by the building. Its relation to construction and material has no less vigorously been insisted upon in this room many and many a time.

To suggest principles for the design of ornament either in form or colour is too complex a subject to deal with to-night; we will content ourselves with a few thoughts on its general application.

It cannot be too often insisted upon that the principle object of ornament in architecture is to give beauty to constructional features, and that by keeping this in view our art may, and will, improve our construction. How far the excellence of mediæval construction is the outcome of purely æsthetic ideas would form a good subject for the Discussion Section or for a paper. Surely the clustered column is due to the effort after beauty, otherwise the builder would have been content with corbelled vaulting shafts, but the moment it was conceived that the vaulting and arcade shafts, combined with a smaller pier, would give an equal structural result, this mighty development took place, and we might multiply examples to any extent. On this account a mediæval cathedral is immeasurably more interesting to the architect than a Greek temple.

I would suggest the following as headings for our consideration :—

Principle No. 1.—Rotundity or modelling of the angles, or, as we all call it, mouldings.—The reasons underlying rotundity are, first, the sense of stability produced by rounded corners ; familiar utilitarian instances are the angles of the piers and arches of warehouses and other commercial buildings ; and, secondly, the gradation of light, shade, and cast shadow thus produced.

How beautiful a building may be made by mouldings, apart from further enrichments or sculpture, is seen in an instant by such examples as Tintern and Westminster Abbeys and many other churches, and much of the late Mr. Pearson's work is a striking modern illustration of this fact. Mr. Penrose says in his great work, "Athenian Architecture" : "It is owing to the perfection of the mouldings, both in design and execution, occupying as they do an intermediate position between the ornamental sculpture of the frieze and pediment and the simple lines of the architecture, that the Doric structures produce on the mind a sufficient feeling of richness so admirably chastened as not to interfere with their reserved and almost severe majesty." If this may be said of Greek architecture, how much more forcibly does it apply to mediæval !

Plinth and base sets-off, pier-angles, shafts and their capitals, arches, and vaulting ribs, &c., are the leading lines calling for such modelling, and you will find it a never-failing source of delight to analyse the reasons, artistic or practical, which led to the particular form these features have assumed. Such study will vastly assist you, not only in sketching them but in their design.

Principle No. 2.—Ornament against high light.—This is the lithic rendering of a truth observed by all great painters, namely, that the lights must be beautiful in form. Recollect that the eye of man, in common with other specimens of natural history, goes at once for light. We cannot, therefore, spend too much thought or care on our tracery, which was clearly evolved in obedience to this great law. Grilles, bars, ornamental lead glazing and window fastenings have a similar origin. I believe there is a great field in this direction if sustained attention were directed to it.

Skylines come under this head. The rule seems to be that though the general constructive skylines may be very severe, they must be softened by well-modelled ornament. You will notice that in all satisfactory instances they are rounded in form. If it is Gothic, the crestings, crockets, finials, gargoyles, &c., produce the desired effect ; if Classic or Renaissance, statues and vases, &c., supply the want. Sharp pointed finials and vases are always painful to behold, whereas a more substantial terminal of good form producing a dark spot against the sky is most picturesque. Compare those of the adjacent buildings of New Scotland Yard and Whitehall Court. Diapers also may be instanced, and other enrichments of plain surfaces where exposed to direct light, such as the spandrels of the arcades in Westminster Abbey.

Principle No. 3.—The richest ornament must not be in the highest lights. Was this the reason which led the thirteenth and fourteenth century artists to stain their windows with such deep tones that they should not allure the eye too readily from the architectural ornaments of the interior ? I believe it was so, but those were the days when artists worked in unison, and the worker in glass subordinated his work to the great scheme the one master designer had before him. It was only later that the glass-worker sought to glorify himself by white glass and more elaboration of detail, casting patches of shadow and colour to the confusion of the ornament of the interior. And this is further proved by its happening when the area for glazing was at its maximum and less, not more, light was wanted within. Exactly the same sacrifice of architectural effect to skill in carving is to be seen everywhere in the fifteenth and sixteenth centuries, directly the Renaissance, with its enthusiasm for surface ornament, arrived. Note such work as the choir stalls of Amiens and the chancel screen at Chartres.

It is in the half lights that the great sculptures should be found, and their subject of greatest interest will be led up to gradually, first by means of a frame of mouldings or other architectural enrichments proportioned to the complexity of the sculpture composition. It was only in the depths of the sculpture itself that colour was allowed in the best examples of the best periods. The processional frieze of the Parthenon is the most celebrated instance of this principle of ornament in the half lights, and you will doubtless have noticed that this mighty sculpture was mainly lit by light reflected from the white pavements.

Principle No. 4.—Solidity.—Never allow your enrichments to undercut the constructional lines. Carving is apt to sin here. Architectural carving, in its most simple application, is generally required to beautify awkward transitional spaces, such as the bells of capitals, corbels, bosses, and various other intersectional features. I have not time to do more, nor can I do better, than refer you to the Corinthian capital as an illustration of my meaning. Carving tends to reduce the sense of structural resistance, hence, in good Gothic periods, shafts are never enriched. On the other hand, where, as in the Parthenon, the columns exceed in bulk the requirements of superimposed weight, but are needed for other structural reasons, they have to be enriched by flutes. Here it is again interesting to note that the lack in a Greek column of the support which the base gives to the long vertical Gothic shaft is supplied by a heavy entasis in the column itself.

Principle No. 5.—Concentration on eyeline. —Ornament is interesting in proportion to the thought it embodies, and, therefore, if of a popular character it should, like other good works of fine art, be placed where it will be seen and most valued. In domestic work doorways, fireplaces, dados, form good fields. If of sacred nature it should be in places which will give the best opportunity for reflection. The enrichment of vistas such as the ends of aisles, corridors, &c., is of great importance since the eye is immediately led up to them by the converging perspective lines.

Principle No. 6.—Weathering.—In the best periods much attention was bestowed on protecting ornament from injurious weather. If we examine the mouldings of the Parthenon we find that the soffit of the corona of the pediment which protects the principal external sculptures is deeply convex, with the further effect (probably intentional) of giving a tenderly gradated background to the sculptures. The hawk's-beak moulding above and below this soffit are also weather mouldings. The soffit of the main corona is still more amply weathered both in main section and by the drip at its external edge. Possibly you may think it worth your while to apply our axioms to some of the more celebrated buildings, ancient and modern, and thus to prove at once the test and its subject ; but, I warn you, do not reject the rules because you discover many beautiful inconsistencies, for art, like the best of womankind, is full of charming contradictions.

In medieval work we find the same principle at work regulating the mouldings which oversail the sculptured parts. The instances in which carving is unprotected, such as crockets, &c., are in obedience to the other law we have been considering, namely, skyline.

We must ever keep in mind that good jointing as an element of constructional beauty is of immense importance in the form of the joint and colour of the cementing material, but this comes under the head of texture and not of ornament."

Detail.

Mr. Halsey Ricardo then made the following remarks on "Detail" :—

"I used to hear it said—when I was a pupil—that 'a good building could carry off bad detail, and a bad building be saved by good detail.' This was consoling ; because, whilst good building might be beyond one's reach, one could learn up the correct rules for good detail.

But the aphorism, unfortunately, is not true : Building and detail are not separate qualities ; you cannot put up a building, and by enduing it with detail convert it into architecture ; you cannot put up a building but what it has detail ; you can hardly put one stone upon another but what it reveals thought or want of thought. Detail depends on the way you tackle the problem before you, and the knowledge you have of the capabilities of the material you mean to use. The more thoroughly you enter into the structure of your work, the more interesting your detail becomes. Take a simple boundary wall, for instance, to your garden in the country. We will suppose it is a clay soil—clay soil, unfortunately, is the most likely thing one has to meet—and consequently, with the exception of some thin, tough flagstones, there will be no stone for building purposes. We shall have to use bricks, and we will suppose what is commonly the case, that money is short and the bricks dear. We stake out our wall, to fulfil its conditions as boundary, but with a sharp eye on the levels and irregularities of the ground, so as to save ourselves unnecessary digging, and to take every advantage the ground may give us. At once we are importing detail—detail of plan—into our building. At one part of its career it has to span a damp spot which, in wet weather, becomes a brook. We visit the adjacent brickyards and consult with the proprietors upon their bricks. This results in the purchase of bricks from various kilns, some burnt with wood and some with coal, and we apply them according to their excellencies. The flagstones, on the site, will make good foundations and come in serviceably for coping ; the hardest bricks wil make the base of the walls, and we shall be probably tempted here and there to make some pattern with the black ends of the headers. We shall throw an arch over the brook and build in, possibly, some of the flagstones as voussoirs, allowing them to project, for we mean to have mould, and fern seed upon them. The brightest coloured bricks are to be reserved, to be used as spots of colour where the mass of brick seems to want lightening. At convenient places we shall build in some flagstones to form some steps where we may want to scramble over the wall. We shan't want for detail, and the more thought we put into our work, the more pleasure there'll be to come out of it.

We live now in a very learned epoch ; our learning has been most exhaustively collected and summed up for us, and the tendency is for us to bolt it rather than to digest it. We approach the matter of detail from the academic rather than the humorous point of view, and detail becomes deadly learned and learnedly dead, instead of alive and inevitable. Our point of view, although learned, is artificial. We admire the masterpieces of the past ; we have taught and drilled ourselves, too, for excellencies other than what their creators won their fame with. We see their work incomplete, and exalt the lack of finish, that would stupefy the artists could they see what we were admiring. We are all agreed in our admiration of the Elgin marbles, yet every Athenian of the Classic age, from the school-board truant to Pericles, would be horrified to see in what state the temples and sculptures are that we are so carefully hoarding. 'The beautiful purity and translucency of the marble,' that we talk about, was nothing especial to them, whereas the colour that made them life-like and friendly, *that* they did value.

Much of the Greek and most of the Roman work that we see now, and elaborately measure and reproduce, has lost its fine marble-stucco coating and its delicate nuances of form, as well as colour. The detail of Classic Roman work relied on these refinements, and is incomplete without them ; but we have got into such an attitude of estimating these ruins that we should shriek at the notion of restoring them with stucco and colour : we are so out of touch with them that we neither care, nor wish, to do so. But Classic work and Mediæval work depended immensely for its effect on colour, and so at the outset did the Renaissance.

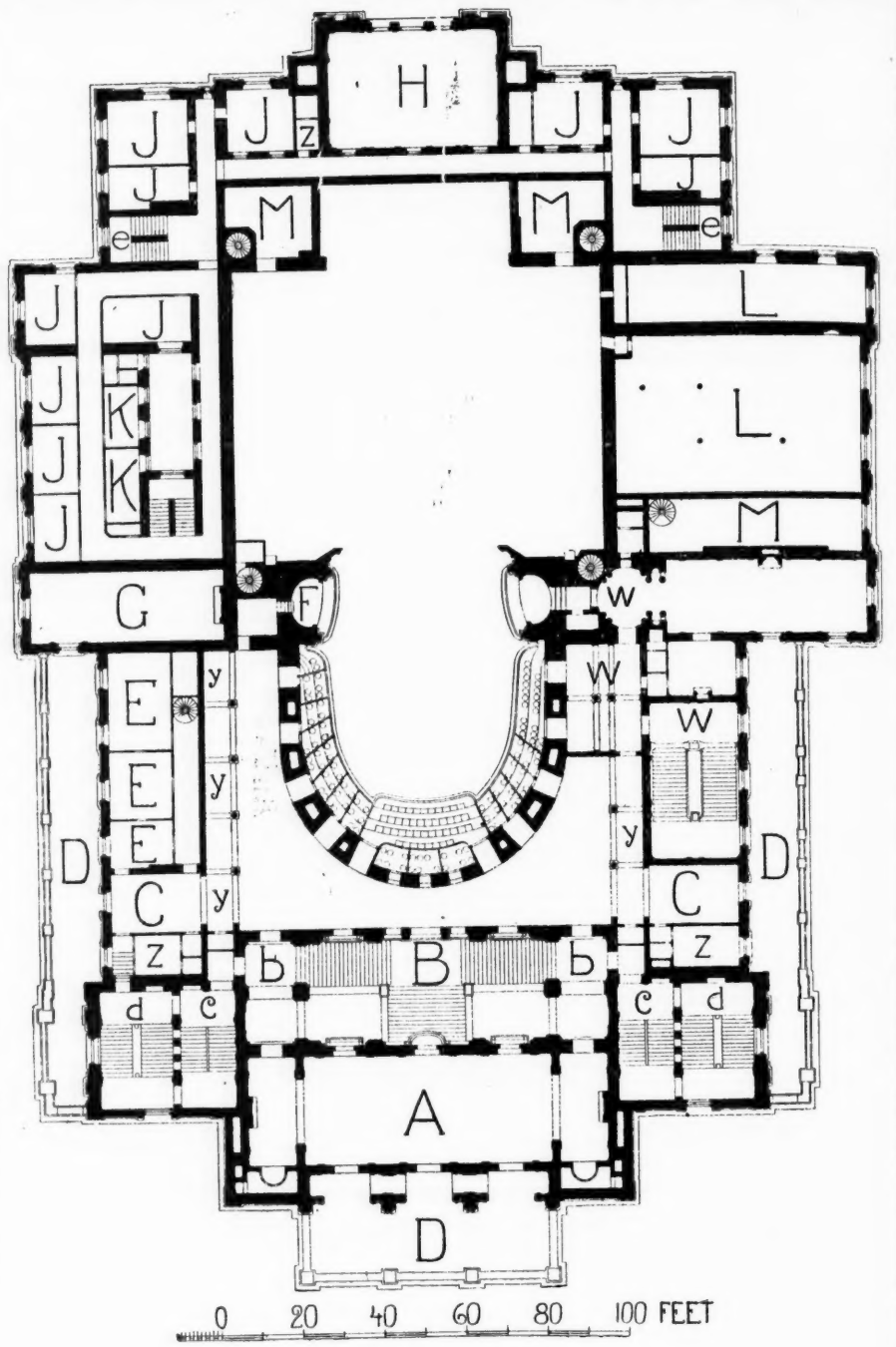
But with the revival of letters came the new point of view, and Art became the cult of the learned few, and popular no more. The character of detail changed. In the Middle Ages the people identified themselves with their buildings, contributed money, time, and experience—the building was the outcome of many hands and many hearts—

with so much ready and passionate co-operation, it riots in its wealth of detail; and the hands that contributed this enthusiastic labour were the hands that had grown up on the material they were now touching. Every moulding recorded a mason's experience—romance and experience met together in it—each new vault was the outcome of observation, jealous as well as ambitious. A man carved his woodwork to his own fancy in the detail, and recorded with his chisel his view of that perplexed problem—his life. Detail had a point and a sting in it then—it was so very real, and it aimed at being so audaciously real! Then came the learned professionals, full of the stores they had gathered from classic grounds, and the 'one man' system of erecting a building. He came, with his academic principles, his sketches, his scenic frontispieces, his new mouldings and generally exotic view of life. For long one does not see the unreality of his wares. The craftsmen had their tradition: they played up to him as best they could, and, thanks to their tradition, their support is amazingly good; but under the system their tradition weakens. The tasks set them get stranger and stranger and more inexecutable. Marble details suitable to the climate of Italy to be executed in granite at Aberdeen; stone details to be rendered in wood, wrought iron details to be made in cast iron—how could Art be popular, if these unrealities and ignorances were what she depended on? The more and more 'correct' detail got, the more and more foreign and insincere it became, and, only we don't like to own it, the more uninteresting, except to the pedant.

It was owned, at the time of the Gothic revival, but then there was no fund of tradition to fall back upon, as there was in the sixteenth century, and the revived Gothic was really as baseless as the Renaissance.

What then is the moral? What have we to be after to-day? We have got to make our detail interesting, sincere, and redolant of the time we live in. It will be interesting in proportion to the amount we care for it and of heart we can put in it. It will be sincere and flavoursome according to the amount of knowledge we possess. Our hand must be on the material. We have all the past to dip into as a vast storehouse, but we are not to ignorantly tease stone into purposeless mouldings nor fret woodwork into unnecessary joinery. Through all the perplexities of each job we have to riddle down to the bare facts of the case, and then see how we can combine them and in what guise. Every detail should be questioned as to its function, and unless it can pass that ordeal, disallowed. We live in new times, when materials are comparatively cheap and labour dear. We have facilities for transport unknown in even the recent past; we have machinery in superabundant quantity (because, not knowing how to use it, we let it recklessly drive ahead anywhere and with anything), and our work, if it is to have any vitality, must recognise and make use of these forces. At present they are used in such violence and in such quantity that the man behind them disappears, and without him goes the pleasure and interest. What can be duller, for instance, than a lot of machine-made panelling unless it is smothered in hand decoration? Technically, it is actually superior to hand-made panelling, and it has the beauty of perfection—but we want something more friendly than the heartless output of the machine. We cannot do without the help of machines, but their work should not be much in evidence. The machine really is to replace servile and unskilled labour; where we want skilled craftsmanship, there we must use the man. The fearful fertility of the machines has a tendency to alter our standard of what is necessary, and to choke us with a mass of inanities, which are forced upon us to justify this uncalled-for production; and this facility shows itself in restless, purposeless detail. But what is the point of detail? If it is to show how rich we are, it is vulgar and offensive; if it is to show that we are thoughtful and in earnest, it must necessarily be restrained; if it is to show that we are happy in our work, let it be as widespread as your happiness will allow, and we shall all wish you, not, I fear, without a little envy, more opportunity of cheering us with the sunshine of your pleasure."

On the motion of Mr. G. B. Carvill, a vote of thanks was heartily accorded to Mr. Prynne, Mr. Seth-Smith, and Mr. Ricardo for their interesting addresses.



References.

A. Lounge.
B. Grand Staircase.
C. Lobby.
D. Balcony.
E. General Management.
F. Mayor.
G. Green Room.
H. Ballet Room.
J. Dressing Room.
K. Stage Management.
L. Scene Store.
M. Store.
b. First Tier Stairs.
c. Second Tier Stairs.
d. Third Tier Stairs.
e. Service Stairs.
w. Royal Room.
y. Cloak Counter.
z. Lavatory.

New Opera House, Stockholm. Plan.

These gentlemen having briefly replied, the meeting terminated.

The next meeting of the School will take place on November 7.

Illustrations.

THE NEW OPERA HOUSE, STOCKHOLM.

THE two most important playhouses completed of late in Scandinavia, are the New Opera House at Stockholm and the new National Theatre at Christiana. The first-named building, which was opened this year, is illustrated in the present number. The architect is Mr. A. Anderberg, of Stockholm.

The construction of this theatre had been under consideration for a very considerable time, and we remember a competition for the design as far back as 1888, when a sum of 350*l.* was offered in premiums, and Mr. Karlsen was given the first place, Mr. Anderberg having the second. Mr. Karlsen's design, however, did not find favour, and it was the author of the second premium to whom the commission was ultimately entrusted. Mr. Anderberg's planning, by the bye, we should add, certainly merited the commision, for Mr. Karlsen's design, though very elaborate, by no means accorded with the modern requirements of the playhouse.

As regards the general arrangement of the building, the plan of the first tier gives a very good idea of the scheme; and we would only add that the width of the proscenium opening is about 37 ft., whilst its height is just over 40 ft. These dimensions indicate the scale on which the building is designed. We would call particular attention to the Grand Staircase, and also to the proscenium framing of the auditorium, whilst the very large area accorded to the stage offices also, perhaps, calls for remark. The stage itself has a width of about 90 ft. and a depth of 88 ft.

The building was carried out under considerable difficulties as regards the foundations, by the retention of some of the old walls of the former theatre, and also in matters of finance, and it was on account of the latter reason that the façade is not entirely of freestone, as originally intended, and that there is not that elaboration in the decoration which might have been expected in a Court Theatre.

PROPOSED CLUB HOUSE AT WOODBURY.

The building is designed to occupy a corner site, the long frontage shown in the drawing being towards the main road. The accommodation was to include a large room or hall which would be available for private engagements and concerts. This is situated on the first floor, and is approached by a wide staircase from the entrance hall. The room has also two minor staircases next the platform.

The club for which the building is designed is non-political, and embraces reception and reading-rooms as well as a large dining-room on the ground-floor, and on the first floor, in addition to the hall, a large billiard-room with separate lavatory.

Red brickwork and Portland stone will be used for the exterior, with a Westmoreland slate roof. The oriel windows to the hall are of English oak, with sculptured panels below.

The architect is Mr. A. H. Hart. The drawing was exhibited at the Royal Academy this year.

FOUR SMALL COUNTRY HOUSES.

These houses have all been erected in exposed positions on the South Coast, at Southbourne-on-sea, near Christchurch, Hants, and at Freshwater Bay in the Isle of Wight. The idea has been to make them suitable for such exposed positions, in that they are compact and comfortable, and have few gables or unnecessary projections or angles to catch the wind and weather. The materials in all cases have been brick with some stone, and red-tiled roofs with a little oak half-timber work.

The houses each have an acre and a half to acre of land, and are built for private clients. The cost has varied from 1,500*l.* to 2,300*l.*

Messrs. McWilliam & Son, of Bournemouth, were the contractors for three of them. The architect is Mr. G. A. Bligh Livesay, of Bournemouth. The drawing was exhibited at this year's Royal Academy.

BUILDING ON PAPER.*

BY PROFESSOR T. ROGER SMITH.

Before I open the subject of this lecture, to which I have given the title of "Building on Paper," I must very briefly revert to the decease, during the course of last session, of Professor T. Hayter Lewis, Emeritus Professor of Architecture in this college. He honourably filled this chair—in which he succeeded Professor Donaldson—from 1866 to 1881, and near the time when he resigned the professorship he also retired from his practice as architect. He brought to the discharge of his duties here wide knowledge, both practical and theoretical, and an earnest desire to benefit the students, an indefatigable amount of research on their behalf. And I know that many of his students valued highly the instruction he gave them. Professor Hayter Lewis was of high culture and widely esteemed, but he was of a retiring disposition. For some time, however, he filled the post of Honorary Secretary to the Institute of Architects, and, in an unobtrusive way, had much to do with introducing our rules with regard to fees and professional practice, and with setting on foot the voluntary examinations which preceded the series of professional examinations now carried on by the Institute. Since his retirement he had devoted a good deal of time to Oriental and Biblical archæology. Among the considerable works which he carried out as architect were the north and south wings of this college. Professor Lewis was to me personally a very kind and valued friend, and at the time when I succeeded him in this chair he gave me the most generous assistance. He added much to the collection of diagrams here and left them all here for my use. Lately, since his death, his executors have presented the whole of his diagrams and many photographs to the college.

In the course of the session 1898-9 the professor of architecture at King's College, Professor Banister Fletcher, died after a very short illness, and when he hoped he still had a good time for work before him. He was a man of extreme energy and activity, well fitted for public life. At one time he sat in the House of Commons, and he was a member of the Common Council of the City of London, and of many other public bodies. I was not brought in any way into relation with his work at King's College, but we were old associates in other ways; I was especially associated with him in organising technical instruction and in technical lectures and examinations; and I can bear witness to his indefatigable and indomitable activity, his resource in times of difficulty, and the steadiness with which he kept constant to the discharge of the duties he undertook in connexion with the matter I am referring to. Professor Fletcher's name will be familiar to many of those here as that of the author of a series of practical handbooks which have had a large circulation. He had the rare good fortune of being able to work till the last week of his life, and of leaving sons behind him working in his profession and able to do credit to the good name which he had bequeathed to them.

Building on paper is what you will all have to understand and practise if you are to be architects of the present day. The name which I have chosen is not the one by which the practice we are about to consider is usually known. Yet building on paper is pre-eminently a practice of the present day, and is one which has been modified and increased in its scope and its range even during the history of the present generation. Building on paper is not done now precisely as it was done a century ago—still less two centuries ago—and there have been times when people had little paper and only parchment. They certainly did not thus practise this art as we do. But to-night we are considering what is customary and convenient to do now in England, and I do not propose to consider past habits.

The work of an architect may be divided into two halves; building on paper is one half, the other half is building on the solid ground with bricks and stones and timber. This is the most interesting half of architectural practice. But that which is done on paper is extremely interesting also, and is what you have first to master before you can touch the other.

Before a line can be drawn on your paper (for I need not, I think, tell you that the way to build on paper is to draw the building), before a line can be drawn, or at least usefully drawn, there must first exist in some one's mind an idea of the building, and it will help us in considering the actual paper-work if we first think over the head-work which must in part precede it. You may possibly work for a good while in an architect's office on plans and drawings of buildings before it dawns upon you that you are a long way removed from the first beginning—the start—the germ of the whole thing; and it may not even then occur readily that this germ does not rise in the mind of the architect himself, but in that of some one else, usually his client, or his possible client, the person who wants the building. A building is not built on paper in the way of business unless there is some one who wants, or thinks he wants, actually to erect a building; and it is not built on paper even by way of exercise or study unless either the student sets himself a problem, or a teacher or an examining body, or some such person, sets such a problem.

In the ordinary course, some circumstance gives rise to the need of, or the desire for, a building to be erected. It may be that a family has grown tired of living in a hired house and desires one of its own. It may be that a business or manufacture, or public undertaking is carried on in a building which it has outgrown, or which has always been unsuitable, or which is not so fine or so commanding as the building of some rival or some friend. It may be that a new requirement has arisen—a town needs a town-hall or a hamlet a cottage hospital; or it may simply be that, as a spur to invention, an imaginary set of circumstances are simulated and a prize is offered for plans to correspond to them.

We will, anyhow, call those who start the idea the originators. Few originators have any mental picture or image at all of what the building is to look like, or be like—at least such is my experience; but they accumulate round the original notion of a possible future building a great many more or less apposite notions about where it is to stand, what accommodation it is to afford, what it is to cost, what it will bring in, and so forth, and occasionally they take much pains to render these notions definite and precise.

Matters will have got thus far when the architect and the originator get together for the first time. If the originators are a body of men, and the building is to be a public building, they often have a wish for a competition—that is to say, they will offer an inducement to several architects, more or fewer, to build schemes on paper for them, and let them (the promoters) select the scheme which they like the best, or the one pointed out to them as the best.

When this is the case, the originators, or some professional or official person for them, has usually to make out some considerable detail by considering what is wanted, and to embody the idea thus developed in a paper or programme, being what is mostly called "Instructions to competing architects." Sometimes these instructions really embody the general idea satisfactorily; more often than not they overwhelm it with a mass of detail which the originators had better have let alone. In other cases, where the originator employs a single architect, the architect will have the great advantage of personal communication with his employers, but usually the disadvantage of finding the project indefinite and the idea nebulous. Here an architect of intelligence, and especially if he has some experience, may often be of great service in helping to develop the idea before anything is put on paper at all.

The familiarity of the architect with buildings and his natural good sense, if he be a sensible man—as every architect should be—will, however, at this stage enable him to be of great service to his client by suggestions on the one hand and discussions on the other. Seldom is it the case that those who propose to build limit their programme to what they really want and to what the money at their disposal will procure for them; and, accordingly, a moderating influence at the outset, especially if there is some experience to back it up, will usually save a great deal of trouble and delay and vexation at a later stage.

However obtained, let us assume that an idea of an intended building has been originated and worked out in the mind and with pen and ink sufficiently to form a programme. With this to guide him, the architect has now to begin the pleasant, but often very arduous, task of giving the idea form. I have intentionally avoided the phrase "designing the building," and, before the close of this lecture, I may mention the chief reason for doing so. At this stage it is sufficient to say that this process of building on paper is really what is most often known as "designing."

The architect who is to be successful in originating a new building on paper must be familiar with other buildings on paper, and also with actual solid buildings. There is also a great deal of what may be called technical routine, which must be very completely mastered before a man can proceed to attempt what I am about to describe with any prospect of success. You can no more originate a new building on paper without being familiar with plans, and sections, and elevations, and roofs and walls and fireplaces, and arches and columns and suchlike, or draw the plan of a new building or its elevation, or its sections, without having worked long and diligently upon plans, sections, and elevations of buildings that other people have originated, than a sower could sow a field without having seed-corn in his basket, or than a spider could spin a web without the pouch full of white maths from which it draws out its threads. A well-stored memory is part of the equipment for starting to plan on paper a building which has as yet no real existence; and this applies not merely to architectural form, features, mouldings, enrichments, but also to more commonplace things—such as, for example, the shape of rooms, the thickness of walls, the position of windows and doors, and the hundred matters which a plan defines.

Office practice also helps on another part of the architect's equipment. It is draughtsmanship. To build upon paper one must be able to draw—and to draw with tee-square, set-square, dividers, and bow-pencil with perfect ease. As long as your tools trouble you, they will stand in your way, and it is quite necessary to master them, and feel at home in the use of them. I have heard a very good judge say that it takes most students a year to learn to draw a straight line and turn a round circle. This may be exaggeration, but drawing with instruments is an accomplishment; it does not come naturally or easily.

* The opening lecture of the session 1899-1900, at University College, London.

The gathering together of what one may call the mental building materials necessary for our enterprise is partly to be accomplished by taking part in office work as a pupil or an assistant to some architect; partly by independent personal study. Like many other processes of accumulating knowledge or acquiring skill, this goes on in the main unconsciously. The young man who begins by tracing simple plans, and gradually goes on to work upon the working-drawings in the office, and after a time is entrusted occasionally with a sketch to work out, is hardly ever fully aware that he is filling his memory with sundry building details which hereafter he will use on his own account; but so it is, and this time—sometimes looked upon as irksome—is really a seed time.

One of the objects of the evening classes carried on here is to assist you to acquire skill in draughtsmanship. The liberality of one of the City Companies—the Carpenters' Company—has enabled us to establish a class for architectural drawing and a class for the drawing of construction, in which the fees are almost nominal, and the teaching high class. It is always of great importance to draughtsmen to be able to draw, and that at least we endeavour to secure for those students who attend the drawing classes, provided they work with a will, and really intend to acquire the art.

But the power to draw is not everything, though it is an indispensable part of your equipment. You want also to know *what* to draw. You require, on the one hand, a familiarity with the principles and the practice of construction; and, on the other, with the nature of architectural buildings. Before you can produce the drawings of even a simple building, you must know a good deal about how buildings are constructed, and how architects have erected them in times gone by. It is this kind of knowledge which it is the object of the lectures here given to communicate. You must make it your own by personal study. You do not get much information if you simply come here and give little attention and take no notes. I am glad to say that that sort of attendance does not take place much in this class-room, and that the students who come here come, for the most part, in the proper spirit, and consequently learn something. By dint of listening to lectures, reading books, examining photographs, copying drawings and engravings, you get some amount of architectural knowledge stored in the mind, and it only depends upon yourselves to make that in itself a considerable quantity and also the starting-point for more.

There is, however, no doubt that work in an office and work in lecture-rooms and class-rooms needs to be supplemented by work on buildings. Careful study of existing buildings—and by study I mean making sketches of them and drawings of them, and in some cases measured drawings—will more than anything else fix points in your memory which will hardly take root there in any other way.

The study of an existing building, if it be a good one, is the most useful thing that you can do, and if at some period you can devote some months to it so as to see and draw the buildings of some of the great building countries of the Continent—Italy, Greece, France, or Germany—you will find that your building on paper will be infinitely better, and that you will rarely have to stand still in it for want of knowing what to do.

Part of the idea of an intended building is usually that it is to occupy some definite site. Certainly, before you can do much on paper, the site must be known.

An academic design may be, perhaps, supposed to stand unencumbered in an open space, as the Natural History Museum at South Kensington does; but for all actual buildings some actual site is proposed, and most sites are restricted and have accidents of shape or surrounding, and if the building is to be good it must correspond to its site. By this I do not mean simply that it must be no bigger than the site will hold—though that is obviously necessary—but that such suggestions as the site may offer shall be grasped, that such advantages as it possesses shall be detected, that such difficulties as it may present shall be foreseen and provided against, and that the project when translated from paper into actual brick and stone shall seem to belong to the site, and to have grown out of it. What is known as a difficult site often has proved, thanks to its peculiarities, the fertile source of exceptional and successful treatment at the hands of a capable architect. Take a volume of plans of City churches by Sir Christopher Wren. Nothing can be imagined more irregular and apparently perplexing than the cramped and confined sites which most of them occupy. Nothing, on the other hand, can be better than the way in which the genius of that great architect has overcome the difficulties and turned them into so many occasions for happy architectural treatment.

Let it, therefore, be your rule before making any progress with drawings to see the site and to ascertain whether it has any peculiarities—whether it presents any difficulties, and whether it suggests anything—or requires anything. The most obvious points to inquire into in regard to a site are the direction from which a building is approached, the direction towards which it is to face, the aspects of the windows, the views from the windows, the levels of the ground, and in many cases the peculiarities of adjoining or neighbouring buildings, or even of buildings likely to be built hereafter.

It is not easy to illustrate what I have said by a reference to existing buildings with which you may be familiar, because when the difficulty has been overcome it disappears from sight, but if you will imagine an irregular mass of back buildings, at different heights, and all at sixes and sevens as regards shape and position, and the approach to them up a little slip of a passage leading from a main street, you will have an idea of what that singularly skilful architect, Mr. Robson, had to deal with when he sat down to plan the New Gallery in Regent-street. The series of admirable picture galleries, opening out of a central atrium or hall, which he contrived, looks so regular and simple and orderly that hardly a trace of difficulty remains, and the result is beautiful. Here the architect had the genius to see what the nature of the site suggested, and, in spite of numerous difficulties, to evolve a most successful result, not the least charming part of which is suggested by a troublesome difference of levels.

As a familiar example of failure to suit the building to the site I may refer to the National Gallery, by Wilkins. Few buildings of modern work have been more uniformly and bitterly criticised than this one, yet I assure you were it only in a street 50 ft. wide, so that it could never be seen except foreshortened, it would be found to be full of beauties. Each part is good, but the whole is neither commanding enough nor lofty enough to occupy its actual site, which is as the top of a rising ground, with nothing in front of it, and inviting all the world to look it full in the face. Something like the Invalides at Paris, or St. Paul's Cathedral, is the sort of structure that would have adequately occupied such a site as this, but could the National Gallery, unsuitable as it is to that position, be moved two or three hundred yards west and rebuilt in Pall Mall, every one would be struck with it as an excellent building.

Beyond the site another element which from the first influences the draughtsman is the style in which the building is to be built. The style may not be very definitely present to his mind from the first, or may be taken for granted by him, or it may be deliberately chosen from the first; but however that may be, the style will influence the project from very early in its progress.

Style bears something the same relation to building that language does to writing. We are all aware that there is a certain character appropriate to each language—that while the main lines of thought may be well expressed in English, French, German, or Italian, there are a hundred refinements of meaning which one language can express readily enough while another has no word for them. That this is so is proved by the books peculiarly typical of each great language. Some one has said that it was well worth the labour of learning Spanish to be able to read "Don Quixote" in the original.

The plays of Shakespeare could not have been written precisely as they are in French, nor could those of Molière have been written in English. Clever men have translated Shakespeare into French and Molière into English, and it is not to be denied that the whole of the action of the plays of each author and the general idea which are expressed in the speeches and dialogue of each are fairly well transferred to the other language—when the translation has been well done; but the subtleties of expression and finer shades of meaning are things which translation cannot preserve. The style in which a building is designed has the same power of producing an effect upon the building itself; and those styles that differ very widely in their qualities mostly suggest designs which differ widely in correspondence. Compare, for example, the dignified and severe aspect of a Greek Doric building, with its preference for breadth rather than height, and the quietness, simplicity, regularity, and severity of its features with the busy and brilliant vitality of a Gothic Cathedral, with its means of expressing and emphasising height, its endlessly broken sky line, its wealth of ornament, and its tolerance of picturesque irregularity. The genius of the two buildings is as far apart as that of the French and the English language—in fact, possibly further removed; the great architectural works are at least as dissimilar as Hamlet and Tartuffe.

Unfortunately for us at the present day, our knowledge of what has been done before, which is our enjoyment and privilege, has been attended by a desire to reproduce the manner of building of one country after another; and if you walk through any great town you will see a passable imitation of an English thirteenth century church followed by an Italian sixteenth century palace, and then a copy of a Dutch seventeenth century dwelling house, and next to it a Greek building, drawing its inspiration from before the Christian era.

This only needs to be described for one to feel that it is incongruous, but it is easier to blame what is the almost universal practice of the present day that to point to a remedy. One thing at least may be aimed at. An architect may be consistent with himself, and may adopt a style which he may make his own and restrict his work thereto, and men who do that will rarely in the long run have cause to regret it.

I have not yet exhausted the considerations which ought to influence us as soon as we get to actual work at the drawing-board, but I will not at this point add to those which I have just enumerated as necessary—namely, an idea of the building, a site which it is to occupy, cultivated skill on the part of the architect, and some definite idea of style.

The mode of working which different architects adopt has been in most instances partly imitated from others and partly made out for themselves. Most men, I think, prefer to begin to a small scale and make their first approximate sketches small. Some employ at this stage engineers' section paper—paper covered with faint lines some one-eighth or one-tenth of an inch apart, and forming small squares. This assists you to sketch to scale almost free hand with pencil without needing any instruments. If you have really acquired a proper mastery of drawing instruments so that you can think through a bow-pencil, for example, I fancy you will prefer not to employ the section paper. This is one of the points, the many points, on which one man's practice is not a rule for another.

The main advantage of working to a small scale at the start is that some general idea can be reached quickly, and that details are inevitably passed over and postponed to a later stage. If the building be a large one, one-sixteenth scale sketches are often best to begin with. If it be not large, there is not much use in employing a smaller scale than one-eighth of an inch to a foot.

At starting and in the early stages the india-rubber is almost the best friend you have. Crude notions often suggest themselves, are thrown on the paper and soon appear unsuited to what you require. The sooner they are rubbed out the better. Later on, when the project has taken form, I am less sure that constant erasures lead to a good result.

I believe few people now would dream of beginning in any other way than by a plan, but I am not quite sure that some persons may not occasionally put the cart before the horse, and try to work out an exterior first and then put a plan to it, and I understand that it used at one time to be often done. The scheme of the whole building is, however, really settled on the *plan* of the principal floor, and it is to that first that attention must be turned. When something which seems approximately suitable has been reached, it would be well to try how the plan will lend itself to an elevation and a section, and not to complete the plan before you do this. There is a very considerable fascination for some people in plan-drawing, but the plan must not be considered as independent of the superstructure that is to be raised upon it.

The question of style even affects plans, at least so far as this: The symmetrical arrangement needed for a perfectly regular classic

building is not needed, and, indeed, is quite out of place if the style is one which invites the picturesque and the irregular ; and much of the formal character of the one would seem out of place in the other. It is convenient and often practicable in arranging plans where there are a good many rooms grouped together, to get some of the walls to run through continuously, and it is usually desirable, but much more difficult, to let the centre lines of doors and windows run through the building so as to get the openings in line. There is no greater test of skill in planning than the avoidance of many or long corridors. The grouping of many rooms round a central space in place of reaching them through corridors, is fortunately popular at the present day.

The greatest excellence both of sections and elevations I take to be good proportion—and it is a matter of anxiety when something like an approximation to a plan is reached to see whether, taking into account the height to which different parts of the building must go, the main masses of the building outside and the important parts of its interior promise to be of good proportion. Till this seems secured or on the way to be secured the main lines even of the plans cannot be considered finally settled.

A few men have the enviable power of getting all this to come right readily and easily; most require to alter and reconsider and redraw again and again. Meantime, the mind is gradually filling with the subject. The proper treatment is unconsciously developing there, and the ordinary result is that after what may be a long period of unsatisfactory effort, the whole becomes rapidly, perhaps even suddenly, obvious, and a plan and treatment suggest themselves which can readily be put down on paper and which evidently fit the requirements.

A wise man when he has really reached this point closes his preliminary work and begins to elaborate his building.

With most men who possess the power of original design the faculty is more or less capricious in showing itself. Health of body, ease of mind, freedom from distractions, and the stimulus of having a good problem to solve are all helpful to an architect in this part of his work. Constant practice and a well-stored mind add much to the facility with which this can be done.

It will be very much to the advantage of the undertaking which I am trying to explain, if the young architect can manage to familiarise his mind with the idea that what he is about is not simply making a drawing, but making a building. It is unavoidable that when you are drawing you should fix a good deal of your attention on the actual draughtsmanship. When making a plan, for example, that your mind may be fixed more on making what seems to you a good plan looked at as a plan, and less on making it the plan of a good building. These are not always quite the same thing, and I think it quite possible to be led away by it to draw plans that are not in all respects the best to build from. A good plan makes a good building, and I hold even more strongly that good drawings—elevations and sections—translated into stone make good buildings ; but still I am sure that as regards all the drawings which an architect makes there is a risk of being too much taken up with the drawing and forgetting that it is only a means to an end.

It is really a most important matter that your building shall, from its first inception on paper, be such as is well capable of being *built*, and of proving solid in construction and devoid of unnecessary structural difficulties. This, of course, implies a knowledge of structure, and such a knowledge is not quickly got, especially when you aim at the higher range of architecture. Many a promising-looking building on paper would either be unstable in execution or would require extraordinary methods to make it secure.

The modern builder, with his hidden beams and stanchions of steel or iron, can do things which would be impracticable with only masonry and brickwork ; but some of these are things which it is not desirable to do. The architect also must understand his metal work before he can venture upon them, and will always have to reckon with the want of durability with which this material is cursed.

It is not sufficient to be satisfied that a building can be built ; it also remains that it must under all ordinary circumstances be capable of being built at a reasonable cost. In not a few cases it is requisite that it can be built at a very small cost relatively to its accommodation.

Here again the classes which begin this week afford you help in a very difficult and very indispensable part of your future profession—the art of estimating the cost of a building. I can speak with very great freedom of the instruction given, as none of this is given by me personally ; and I can assure you that it is trustworthy, is thorough, and is systematic ; so that you can honestly feel that the matters which make a building costly or otherwise are not mysteries entirely beyond your comprehension, but are put well within your reach by Mr. Burr, our gifted instructor in estimating and measuring.

Few parts of the architect's work are more troublesome than the necessity for exercising a rigid economy when scheming a building on paper. So much that is desirable is apt to recur to the memory or to suggest itself to the invention, and yet the architect working with the need for economy pressing upon him may have (often will have) to exclude most of it. He need not, however, refuse all ; and few things show the true master of the craft more than the power to add just so much ornament as will redeem a building from plainness, just so much feature as will save it from blank insipidity, just enough character to prevent its being commonplace, and there to stop.

If you can draw ornament, it is easy to pile up enrichments and cover your structure up with them, but it does not follow that the effect will be good. In not a few cases, so ornate a building will be less successful supposing it to be carried into execution than would one with a less amount of ornament placed just where it is needed.

I have referred to ornaments as an illustration of this part of the subject, but it is not less true of any other desirable feature or quality of a building that you easily can indulge in its lavish employment, and that fortunately in most cases your skill will be best shown by the restraint under which you work when introducing it.

At some period the necessity will rise for a drawing made not only, or chiefly, to assist in the development of the project, but in which to illustrate it to other people—to the client—perhaps to the public. Persons who have little familiarity with building vary in their power of reading drawings to a remarkable extent. Many people, however, can understand something of a plan, considering it a sort of map of the floor of the intended building, which is really a very true idea of what a plan is, and remembering early lessons in geography and the use of maps ; but few are equally able to read or realise a geometrical elevation or section, especially if it be in pure line. The drawing which elucidates an intended building is a perspective drawing, and the art of building on paper includes the power of representing your work in perspective. You will always find an architect turn to the perspective drawings if there is one in a set of plans, and if he (who spends his life in making and understanding geometrical drawings) does so the less technical public may be expected to do the same. It is not always easy to make a perspective drawing that shall be faithful, and it is possible, unintentionally, to deceive one's self as well as other people ; but this is no reason for not employing this most powerful auxiliary when you are trying to build on paper, it is only a reason for employing it with judgment and honesty. It is customary to exclude perspective drawings from competitions, partly because all people are not honest, and partly because even without being wilfully deceptive the draughtsman may to some extent exaggerate excellencies, and diminish defects, and, perhaps, this rule is wise ; but it shuts out the only method that we have of showing a building as it really will appear, and of suggesting how the features will group. Certainly it is essential for the man who desires to erect buildings on paper to thoroughly master the art of drawing them in perspective.

There is a trick of draughtsmanship which, I fancy, is often very deceptive, which lies in the taking finish of pen-and-ink drawings, and is carried to an extremely high degree of perfection by modern draughtsmen. If you go to that silent and little frequented spot, the architectural room of the Royal Academy, or if you turn over the photolithographed illustrations of any of the professional journals, you need not go far without meeting with showy, brilliant drawings which are very taking in themselves, but which give an idea of finish, brilliancy, and force that the buildings they represent will be far from possessing. I incline to think that a real danger exists here, and that it is well to warn you not to give way to it if you become, as I hope you all will become, accomplished draughtsmen. Do not, in short, let yourselves impart to your building on paper a *quality* which the real thing, if built, cannot hope to exhibit.

It is often the case that the intended building has to be submitted, at a comparatively early period, in the shape of a sketch or sketches. The principal remark one need make about this is that they ought not, if it can be avoided, to be hasty sketches, but carefully considered ones, or you may become committed to a treatment of the subject which is not the best possible, and which it may be difficult to modify after it has been approved.

To return, however, to the question of making the building on paper such a one as can readily be transformed into brick and stone. This is specially the province of your working drawings, and these, especially your *earlier* working drawings, ought to be such as will afford guidance both to yourself and to your builders and craftsmen. By the earlier drawings I mean general drawings of considerable parts of the building to a scale of ¼ in. to a foot or ½ in. Careful and accurate quarter scale drawings afford a great deal of guidance to the architect himself. If the features—the proportions, the width of groups of mouldings, the height of pinnacles, chimneys, and other features—look satisfactory when carefully and accurately drawn to this scale, you may be pretty confident that if you adhere to what you settle on in these drawings, the result will not disappoint you. And in making this remark I refer especially to that series of qualities which make or mar the architectural effect of a building. If such drawings are of especial value for your own guidance, they are also of great use on the building. I have always found that one or two careful sheets of working drawings, if possible to ½-in. scale, showing a considerable feature of a building (such, for example, as a gable), giving an exterior elevation and an interior elevation, and a section side by side, so as to show what lines range, and where the outside and inside heights coincide, introducing as far as possible a specimen of the intended treatment of joinery, plastering, &c., is of the greatest use during the progress of the works, and becomes a sort of standard for reference.

As you proceed, individual parts have to be shown to a larger scale again, and for this purpose an eighth of full size, or 1½ in. to 1 ft., is a very convenient scale. There is very little that requires to be shown that cannot be properly shown to this scale, with the exception of full-size profiles. These should always be given, and both in drawing the details to large scale and the profiles take care to keep within the sizes shown on your quarter-scale drawings, or, at any rate, not to overpass them. For once that the size of mouldings, or of a mass of moulded work, may be increased with advantage, there are many occasions on which they had better be diminished.

In another respect working drawings ought to afford an architect guidance which they too often do not lend him. I allude to *colour*. It is the custom in some offices to adopt a conventional scale of colours, or some portions of such a scale entirely different from the real colour of the materials. For example, I have seen York stones coloured *blue* in many carefully-prepared working elevations. It may help a builder's foreman to pick out on the working drawings the places where York stone is to come to put that conspicuous tint on those places, but it does not help the architect to understand what his York stone will do in the colour scheme of his building.

In the office where I learnt the practice of my profession it was the custom, as far as colours were used, to employ a colour as like the natural tint of each material as possible, and also to colour some—or, at any rate, one—of the principal working drawings all over, so that the effect produced by this combination of variously-coloured materials might be pretty completely indicated. I recommend this practice for your adoption. It has common sense to recommend it, and it adds considerable value to the drawing so dealt with.

Before leaving the subject of working drawings, let me urge you to work as much as possible in *ink*, especially in preparing drawings that are to a small scale. Pencil will do

for details, but it is very unsafe to leave general drawings without putting them in ink.

And now that I have gone through some of the work to be done in designing a building, or, as I prefer to call it, composing the project for a building, and in making the working drawings—in other words, the building it on paper, I am tempted, though allusion was made earlier in this paper to the matter, to ask again. What are the architectural materials available out of which, on paper, a building can be made? Of course I mean the artistic architectural ones? How much can there be of original thought and skill in any project? How much that is not original? For every design for a building must include things new and old.

It sometimes, but very rarely, occurs that a building for an entirely new purpose is wanted. It constantly occurs that a building for a modified purpose, or a building providing for an old purpose in a better way, has to be done, and thus it seems that in the general idea of the building something new and something old—something known and something till now unknown has to be blended.

Modern dwelling-houses, shops, hotels, banks, hospitals, and other modern buildings, discharge purposes, not actually new, but so much modified, generally speaking so much extended and enlarged, and made to fit the increased demands of growing numbers and greater wealth, different habits, more acquaintance with the ideas of foreign nations, as to be half new.

Much the same, I think, is true when we revert to the architectural elements out of which the project is built up. The ultimate parts of a building cannot change. It is made up of, 1, floor; 2, walls; 3, roof; 4, openings; 5, columns; 6, ornaments; with, sometimes, 7, colour; and none of these (save sometimes columns and sometimes colour) can be omitted, and there is no new element that your ingenuity can add; and as these seven things have been done in the world for thousands of years, it is hard to hit upon a shape hitherto unused for any one of them, or a combination hitherto untried. I do not say that either the one or the other is impossible, but I do say that it is hard, and far harder to do it successfully.

Still, so infinite are the ways of combining known elements, that an architect need not despair, though he is using artistic material which the world has known long and employed often, of being able to stamp his own originality on his building. I need hardly say that to do this with any prospect of success the architect must know familiarly and well some of the work of his predecessors. He cannot know everything; he does not need to know everything; but he must know some architecture, and know it thoroughly and at first hand, if he is himself to be an architect.

Let me also warn you against the temptation to make use of untried combinations of architecture drawn from different sources. I quite admit that at some periods the result of national changes and movements has been that in the course of a great change two styles were blended, and that the result has been pleasing. Our own Elizabethan is an example. But it is extremely difficult for an individual architect to succeed in the attempt, and even some national modifications of style have been failures. At any rate, all who are *studying* architecture should be careful to keep within the recognised limits of any style in which they are working. You may combine the features of your style in a fresh way with excellent results; you can rarely introduce an outside feature without producing a sense of discord between the parts of your work.

It appears, then, that to build upon paper you have to work mainly with old and known materials and on old and known lines, and have to try to produce a sense of freshness and originality by the new use you make of them or the careful modifications you introduce. I cannot help thinking that the word "design" conveys more an idea of originating something fresh, something of which the component parts are novel and the putting together also novel, and it is on this account that I have as far as possible avoided the use of the words design and designer. He who designs a building builds it on paper, but looking at the very large proportion which the old has to bear to the new, I prefer to say that he composes.

I ought to add that skill in building on paper is a qualification which is indispensable to your success as architects; and it is almost the only qualification, except personal character and honesty, of which that can be said. It is quite possible to succeed in a commercial kind of building business with very slender powers of originating or combining good architecture, and there is a good deal of that sort of business at the present day, and many an estimable and useful man makes an honest living by it. But that is not exactly what *succeeding* as architects means. It means that all the works which you design and erect shall possess some quality of architectural excellence—something of the fine art of architecture—and upon this sometimes, though not of course always, follows brilliant success in securing work of the highest class and of great importance.

The late Edward I'Anson used to say, and with perfect truth, that there is no profession where an unknown and obscure man with talent has the same opportunity open to him as the practice of competitions opens to architects. Almost every week a building of importance is advertised in the professional papers or in local ones, and though there is a good deal said, and with a basis of truth, about favouritism and the like, there still can be very little doubt that in a very large and increasing number of instances there is an honest desire to let the best man win; and as success in competition is winning a prize offered for the best project on paper of a projected building, all that we have been saying about building on paper comes in. Most of the important public buildings of the present day have been obtained in public competition, and almost, if not quite all, those who so obtained them are architects noted for distinguished ability as designers, and this surely ought to stimulate those who are entering on the career of architectural study to do their best.

If instead of success (to which other elements contribute, such as business ability, a winning address, keenness in the pursuit of advantages, and, above all, good friends) you ask how *fame* is obtained by an architect the answer will be that it is not by the amount of his work but by its excellence. As a contrast take Nash and Inigo Jones. Nash, though a bad architect, was a very clever layer-out of streets and land. Nash's contribution to London architecture may be measured by the mile — all Regent-street, and all the terraces on three sides of Regent's Park were his work; in short, he was the most successful man of his day, but I doubt if a single one of you has ever heard of him as an architect of repute for his work in London. Fame has no word to speak in his praise. Inigo Jones, as far as I know, is the architect of only about half a dozen works standing now in London—one a mere gateway, and all of them comparatively small—and only one of these (the Banqueting House in Whitehall) stands in at all a conspicuous position in the Metropolis; yet no one enumerating the great architects of London would leave out Inigo Jones, and no one enumerating our deservedly famous buildings would forget the Banqueting House. Jones was a real artist, and his fame rests on the art which pervades his works, be they small or great, and not on the extent of them. There is a more famous English architect than Inigo Jones. I allude to his successor Christopher Wren. He was a far more successful man in obtaining work than Jones, and in his day there was more to be had; but it is not the number of his buildings which has raised his reputation, except in so far as the number enabled him to show the great versatility of his powers, but it is his skill as a designer—espedially as shown in his greatest work (St. Paul's)—to which he owes his fame; and the splendid drawings of that great work, preserved in the Cathedral itself, show that there has been hardly any greater adept in the art of building on paper than our foremost English architect, Christopher Wren.

THE SANITARY INSPECTORS' ASSOCIATION.

The sixteenth session of this Association was brought to a close on Saturday last at Carpenters' Hall, London-wall, with the annual general meeting, at which the report of the Council for the sixteenth session was presented by the Chairman, Mr. Moss-Flower. The balance-sheet for the year was also presented, and adopted after considerable discussion. The report showed that the total membership had been increased by sixty-eight during the year, but five of the most eminent of the honorary members had been carried off by death during the last and the previous year, viz., Dr. de Pietra Santa and Dr. Peau (Paris), Sir Robert Rawlinson, the Hon. C. Pelham Villiers, and Mr. W. F. Higgins, President of the Northamptonshire Branch of the Association. Twelve interesting and valuable papers were read before the members, including seven delivered at the very successful provincial conference held by the Association at Lincoln in the summer. The efforts of the Parliamentary Committee to obtain greater security of tenure of office for sanitary inspectors, and for the introduction into the Food and Drugs Bill and the new Public Health Act for London, promoted by the London County Council, of some of the views held by the Association, were detailed. In the interest of public health the petition to the London County Council submitted that sanitary inspectors should be protected and encouraged to do their duty undeterred by local influences (which too often stand in their way), and without fear of loss of office. The efforts of the Association to secure the passage of a Superannuation Bill for sanitary inspectors having failed, it has been resolved to drop that principle for the moment, and press this Session for a Sanitary Inspectors' Qualification and Secure Tenure of Office Bill, and members are requested to exert all their personal influence with M.P.'s to secure the passing of this measure of justice. Pending the passing of an Act for the superannuation of municipal officers (which might include sanitary inspectors), of which there seems very little immediate prospect, the Association has drafted a scheme for a voluntary Benevolent Fund for inspectors, and a Provisional Committee has been appointed to deal with the subject. The report concluded with acknowledgements of the obligations of the Association to the Carpenters' Company for the privilege of meeting in its splendid rooms, and to the Hon. Sec. of the Association, Mr. E. Tidman, who is also honorary editor of the journal of the Association. After the adoption of the report and balance-sheet, the scrutineers' report was presented, announcing the result of the ballot for the offices of Chairman and Members of the new Council. Mr. W. H. Grigg (Fulham) was elected Chairman by 224 votes out of 228 cast, there being no other candidate for the office. The other members elected were Messrs. Moss-Flower (Bristol), T. G. Dee (Westminster), W. Wilkinson (Derby), W. W. West (Walthamstow), Hugh Alexander (Shoreditch), J. Young (Battersea), W. H. Curtin (Lincoln), J. F. Skinner (Brighton), J. F. Strutt (Strand), W. Jacklin (Maidstone), and Messrs. D. Travis, C. R. Billingham, W. Bell, A. E. Hudson, J. M. Kirley, J. Lindley, J. Oliver, J. J. Jordan, T. Ashdown, B. Nurcombe, representing other provincial Boards.

THE LONDON COUNTY COUNCIL.

The first meeting of the London County Council after the summer recess was held on Tuesday in the County Hall, Spring Gardens, Lord Welby, Chairman, presiding.

Asylum Accommodation.—On the recommendation of the Asylums Committee, it was agreed that the estimate submitted by the Finance Committee for an expenditure of 1,000*l.* for inquiries, and preparation of preliminary designs, in connexion with further asylum accommodation, be approved, such estimate to include cost, if any, of visiting foreign asylums.

Sanitary Inspection, St. Pancras.—The Public Health Committee, in an adjourned report, recommended that a representation be made to the Local Government Board, under Section 107 (2) of the Public Health (London) Act, 1891, that the Vestry of St. Pancras have failed to appoint a sufficient number of sanitary inspectors. The recommendation, after discussion as to the sanitary state of parts of St. Pancras, was agreed to by a large majority.

Common Lodging Houses.—The Public Health Committee recommended "That the Council do appeal to the High Court against the decisions of the magistrates in the cases of the Salvation Army premises at The Harbour, Stanhope-street, Strand, and the Victoria Home, 177, Whitechapel-road, and that the solicitor be instructed to take all necessary steps in the matter."

Mr. R. M. Beachcroft moved an amendment to the effect that it was highly desirable that the Salvation Army shelters should be subject to similar regulations as common lodging-houses, and instructing the Committee to take steps to secure this. Mr. Easton seconded.

Mr. Leon (chairman of the Public Health Committee) replied on the discussion. He said the committee had no desire to harass the Salvation Army, but the state of some of its shelters was such as to lead the Council to take the action it had done. The committee's recommendation was adopted.

Enlargement and Alteration of the Whitechapel Fire Station.—The Fire Brigade Committee reported as follows :—

"During the recess tenders were invited from ten firms for the enlargement and alteration of the Whitechapel Fire-station, in respect of which work an estimate was adopted by the Council on August 1 last. The tenders received were as follows :—Mr. B. E. Nightingale, 3,657*l.* ; Messrs. J. Shillitoe & Son, 3,975*l.* ; Messrs. Holloway Bros., 4,127*l.* ; Messrs. Perry & Co., 4,253*l.* ; Messrs. F. & H. F. Higgs, 4,393*l.* ; Messrs. F. & F. J. Wood, 4,885*l.* ; and Messrs. J. Outhwaite & Son, 4,978*l.* Under the authority of the Council's resolution of July 25 last our Chairman accepted the lowest tender, and assented to Mr. Nightingale being allowed to sub-let to approved persons the following work, which is not very extensive :—(*a*) digging and carting, (*b*) tiling, (*c*) granolithic flooring and steps, (*d*) plastering, (*e*) asphalting, (*f*) wood paving, and (*g*) provision of cloth blinds. It is hoped that the work will be begun shortly."

Erection of Cottages, Greenwich. — The Housing of the Working Classes Committee reported that the following tenders had been received during the summer recess for the erection of cottages on the vacant land comprised in the Trafalgar-road scheme, Greenwich : — H. L. Holloway, 11,300*l.* ; G. Munday & Sons, 11,305*l.* ; T. D. Leng, 11,550*l.* ; E. Lawrence & Sons, 11,560*l.* ; Jones & Groves, 11,600*l.* ; Harris & Wardrop, 11,930*l.* ; Holloway Bros., 12,430*l.* ; Leslie & Co., 12,444*l.* ; J. Shillitoe & Sons, 12,500*l.* ; Gerrard & Sons, 12,722*l.* ; W. Shepherd, 12,849*l.*

"It will be remembered," stated the report, "that the Council engaged the services of Mr. Rowland Plumbe to design the cottages and supervise their erection. The amount of the estimate of the cost of the work showed that there would be no charge upon the county rate, and the sum included in this estimate for the erection of the cottages was 9,490*l.* It will therefore be seen that no tender was low enough to enable our chairman to act fully upon the authority given him by the Council. It should, however, be mentioned that the plans were prepared some little time ago, and that there has been a rise in the price of labour and materials since the designs were submitted. We are making inquiries as to the cause of the tenders being so high, and will report further on the matter at a later date."

The London Building Act, 1894.—Mr. Emden has placed on the notice paper the following :—

"That it be referred to the Parliamentary Committee and the Building Act Committee to consider what alteration in the London Building Act, 1894, is necessary to give powers to the Tribunal of Appeal constituted under that Act to require that in all cases involving questions of light and air, all plans for buildings shall be deposited with the Tribunal, and an application made before them before building is commenced, and for the Tribunal to fix the height and dimensions to which the proposed building can be carried without infringement of the rights of adjoining owners, and to compel all building owners to give notice to all adjoining owners before such application is made ; and that it be further referred to the Parliamentary Committee to consider as to framing a bill for the consideration of Parliament, or introducing such clauses into the Council's General Powers Bill as may be required to accomplish the necessary alterations of the law."

Having transacted other business the Council adjourned.

METROPOLITAN ASYLUMS BOARD.

THE usual fortnightly meeting of the Managers of the Metropolitan Asylum District was held at the County Hall, Spring-gardens, on Saturday, Sir Edwin Galsworthy, the Chairman, presiding.

Southern Hospital.—It appeared that the Local Government Board had written a second time urging that the new Southern Hospital should consist of two-story instead of one-story cottages, on the ground that the former would be cheaper. The Works Committee had therefore, in order to ascertain accurately the relative cost of the two classes of buildings, instructed Messrs. Treadwell & Martin, the architects, to prepare a set of drawings for a pair of double-story cottages, and to have taken out a complete set of quantities for both the alternative plans, : : fee of not more than £100. Mr. Brown, Chairman of the Committee, said that this was the only way in which they could give a conclusive reply to the Local Government Board, and the action of the Committee was approved.

Darenth Asylums.—The tender of Mr. Mark Batchelor, of Maidstone, for painting, distempering, and other work at Darenth Asylums, at the sum of 4,464*l.*, was accepted.

An Arbitration.—The decision of Messrs. Pennington & Son, architects, as arbitrators on the claim of Mr. Chas. Wall in connexion with the erection of pavilions and isolation block at the North-Western Hospital, was now announced. Mr. Wall's claim was for 3,200*l.* extras on his contract, and the arbitrators awarded 882*l.*, with 59*l.* costs. These sums were ordered to be paid.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

AT the meeting of the London County Council on Tuesday, the following applications under the London Building Act were considered. Those applications to which consent has been given are granted on certain conditions. Names of applicants are given in brackets. Buildings are new erections unless otherwise stated.

Lines of Frontage.

Hampstead.—The retention of a raised pavement with cellar under, to a shop on the west side of Finchley-road, Hampstead, at the corner of Lyncroft Gardens (Mr. S. H. Pearce).—Consent.

Norwood and Dulwich.—Three one-story shops on land in Half-Moon-lane, Herne Hill, adjoining the "Half-Moon Hotel" (Mr. P. C. Davies for Mr. G. W. Riley) —Consent.

Paddington, North.—A wooden oriel window in front of No. 197, Sutherland-avenue, Paddington (Mr. H. F. Waring).—Consent.

Paddington, South.—Wood and glass inclosures to a portico at No. 8, Sussex-square, Hyde Park, abutting on Clifton-place (Mr. A. R. Mayston for Mr. G. C. Scaramanga).—Consent.

Deptford.—A one-story shop upon part of the forecourt at No. 463, New Cross-road, Deptford (Mr. E. Simpson for Mr. A. W. McClellan).—Consent.

Deptford.—A one-story shop upon part of the forecourt of No. 469, New Cross-road, Deptford (Mr. J. Webster for Mr. J. Chappell).—Consent.

Holborn.—An iron and glass shelter at the entrance to the Novelty Theatre, Great Queen-street, Holborn (Messrs. Murray & Foster for Mr. W. S. Penley).—Consent.

Lewisham.—A one-story shop erected on part of the forecourt of No. 237, Lewisham High-street (Mr. E. MacF. Patterson).—Consent.

Marylebone, East. — A balcony at the first-floor level in front of No. 70, Wimpole-street, St. Marylebone (Mr. T. Durrans for Mr. W. E. Johnson).—Consent.

St. George, Hanover-square.—An oriel window on the first and second floors in front of No. 53, Maddox-street, St. George, Hanover-square (Messrs. Harrison & Ward for Mr. A. L. Langman).—Consent.

St. George, Hanover-square.—An additional story to the bay-window in front of No. 2, Berkeley-square, St. George, Hanover-square (Mr. E. C. Macpherson for Mrs. A. Hall).—Consent.

St. Pancras, West.—A building on the north side of Hawley-crescent, St. Pancras, at the corner of Kentish-town-road (Messrs. W. Bradford & Sons for the Camden Brewery Company, Limited).—Consent.

St. Pancras West—A one-story shop upon part of the fore-court of No. 183, Hampstead-road, St. Pancras (Mr. R. C. Edwards for Mr. F. G. Edwards).—Consent.

Wandsworth.—A two-story dwelling-house erected on the north-west side of Gleneagle-road, Streatham, to abut upon Fairmile-avenue (Mr. W. Hunt for Mr. W. Hancock).—Consent.

Lewisham.—Two houses on the east side of Overcliff-road, Lewisham, with the flanks of such houses in advance of the general line of buildings in Nuding-street and the northern portion of Overcliffe-road respectively (Mr. W. H. Harrop).—Consent.

Norwood.†—A four-story bay-window in front of No. 156, Tulse-hill, Norwood (Mr. M. Marsland for Mr. G. W. Drysdale).—Refused.

Hackney, North.—A one-story stable at the rear of No. 185, Evering-road, Hackney, to abut upon Brooke-road (Mr. J. W. Sandwell).—Refused.

Hackney, South.—The retention of a water-closet at the rear of No. 56A, Cassland-road, Hackney, to abut upon Meynell-road (Mr. G. W. Beale for Mr. H. Spratt).—Refused.

Kensington, South.†—A block of residential flats with bay windows, angle tower, and porch, on the site of Nos. 33 to 43 (odd numbers), Abingdon-villas, and Nos. 1 and 2, Shaftesbury-villas, Allen-street, Kensington (Messrs. Palgrave & Co. for Mr. W. J. Blow).—Refused.

Lewisham.—Iron, wood, and glass porches in front, and iron and glass verandahs at the rear, of six houses on the west side of Chudleigh-road and five houses on the south side of Brockley-grove, Lewisham (Messrs. J. W. Heath & Sons).—Refused.

City of London.†—Oriel windows on the second and third floor levels of premises on the north side of St. Paul's-churchyard, City, and south side of Paternoster-row (Messrs. Gordon, Lowther & Gunton for Messrs. D. Nicholson & Company, Limited).—Refused.

Hackney Central.—A one-story shop upon part of the forecourt of No. 1, London-fields, West Side, Hackney (Mr. J. Browning).—Refused.

Chelsea.†—A three-story bay window in front of No. 4, Danvers-street, Cheyne-walk, Chelsea (Mr. C. R. Ashbee).—Refused.

Deptford.—A retaining wall on the west side of Grove-street, Deptford (Mr. W. Bennett for the Corporation of the City of London).—Refused.

Dulwich.—One-story shops on part of the forecourts of Nos. 451, 453, 455, and 457, Lordship-lane, Dulwich (Mr. A. E. Mullins for Mr. C. Smith).—Refused.

Islington, North.—A building on the site of Nos. 1, 3, and 5, Campbell-road, Seven Sisters-road, Islington (Mr. R. A. Hinds for the trustees of the Congregational Church, Seven Sisters-road). —Refused.

Islington, East.†—A projecting illuminated sign at the "King's Head" public-house, Blackstock-road, Islington, abutting upon Monsell-road (Mr. F. Waghorn for Mr. W. E. Powell).—Refused.

Kensington, South. — A one-story addition upon part of the forecourt of No. 16, Leonard-place, Kensington-road, Kensington (Mr. W. W. Gwyther for the Directors of the London, City and Midland Bank, Limited).—Refused.

Kensington, South.† — An oriel window, three stories in height, to an intended building at the corner of Yeoman's-row and Egerton-gardens (Mr. W. H. Collbran).—Refused.

Paddington, North.—A projecting shop-front to a building on the south side of Mozart-street, Paddington, to abut upon Bravington-road (Mr. E. A. Vigers for Messrs. Seaman & Guest). —Refused.

St. George, Hanover-square.†—An iron and glass shelter at the entrance to the Buckingham Palace Hotel, Buckingham-gate (Mr. W. Woodward for the Buckingham Palace Hotel Company, Limited).—Refused.

Hammersmith.†—A wooden lookum in front of the Phœnix Brewery, Latimer-road, Notting Hill (Messrs. Richardson & White for Messrs. Campbell, Johnstone, & Co., Limited).—Refused.

Width of Way.

Southwark, West.†—Four blocks of dwellings on a site on the east side of New-street, Borough-road, Southwark, to abut also upon Library-street and Warwick-street (Mr. D. H. North).—Consent.

Westminster.—A building on the north side of Orchard-street, Westminster, at the corner of Great Smith-street (Mr. G. A. Hall for the Mutual Tontine Westminster Chambers Association).—Consent.

Clapham.—A bakery in a yard on the east side of Green-lane, Lavender-hill, Battersea (Mr. W. C. Poole for Mr. J. Stanley).—Consent.

Bermondsey.—Buildings on the south side of Tyers-gateway, Bermondsey, at less than the prescribed distance from the centre of that street (Messrs. G. Elkington & Son and Messrs. J. M. Klench & Co., for Major C. D. Sherston).—Consent.

Camberwell, North.—A building on the site of No. 29, Goldie-street, Coburg-road, Camberwell (Mr. W. A. Thompson for the Trustees of the Goldie-street Mission).—Consent.

Marylebone, West.—A block of buildings to be inhabited by persons of the working class, on the east side of Ashland-place, St. Marylebone, to abut also upon Paradise-street, at less than the prescribed distance from the respective centres of those streets (Mr. T. H. Watson for Mr. W. Boswell).—Consent.

Westminster.—An addition to the Bluecoat School, Caxton-street, Westminster, at less than the prescribed distance from the centre of Brewers-green (Messrs. Beazley & Burrows for the Vestry of St. Margaret and St. John, Westminster).—Consent.

Camberwell, North.†—A two-story factory on the north side of Bullace-row, Camberwell-road, Camberwell (Mr. E. J. Strevens for Mr. Wolsey).—Refused.

Hammersmith.—Two blocks of flats on the north-west side of Queen-street, Hammersmith, on the site of Nos. 54, 54A, 56, 58, and 60, with the forecourt boundary or fence at less than the prescribed distance from the centre of the street, and with three-story bay windows (Mr. W. L. Ingram for Mr. C. W. Carpenter).—Refused.

Southwark, West.—Stable buildings on the east side of Bear-garden, Southwark, abutting upon Rose-alley (Mr. R. A. Jack for Mr. C. Webster) — Refused.

Lines of Frontage and Construction of Buildings.

Rotherhithe.—A steel gangway across Prince's-stairs, Rotherhithe-street, Rotherhithe, to connect at the second floor levels buildings on Gordon's Wharf and Prince's Wharf (Messrs. Gillman & Spencer, Limited).—Consent.

Lewisham.—That Mr. A. Miles be informed that the Council is not prepared to accede to his request for its consent in respect of a wood and canvas structure on the forecourt of No. 59, Perry Hill, Catford.—Agreed.

Space at Rear.

St. George, Hanover-square.—That the Council, in the exercise of its powers under Section 207 of the London Building Act, 1894, do consent to the alteration of No. 2, Berkeley-square, St. George, Hanover-square, by the erection of an additional story to extend above the diagonal line, as directed by Section 41 of the said Act to be drawn (Mr. E. C. Macpherson for Mrs. Hall).—Agreed.

Westminster.—That the consent of the Council be given to a deviation from the plans sanctioned on December 19, 1898, for the erection of two blocks of two-story stables in a paved yard on the east side of Regency-street, Westminster, adjoining the Gas Light and Coke Company's premises, without an open space at the rear, by the alteration in the position of the boundary of the property (Messrs. J. T. Newman & Jacques for Mr. T. Cave).—Agreed.

Walworth.—That the Council, in the exercise of its powers under Section 41 of the London Building Act, 1894, do allow a modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of a building on the south side of Larcom-street, Walworth, with an irregular space at the rear (Messrs. Dunn & Watson for the trustees of St. John's Institute, Walworth).—Agreed.

Deviation from Certified Plan.

Chelsea.—Deviations from the plan certified by the district surveyor, under Section 43 of the London Building Act, 1894, so far as relates to the proposed re-building of No. 11, Jubilee-place, King's-road, Chelsea (Mr. A. R. Thorn for Messrs. C. Knowles & Co., Limited).—Consent.

St. George, Hanover-square.—Deviations from the plan certified by the district surveyor, under Section 43 of the London Building Act, 1894, so far as relates to the proposed re-building of No. 53, Maddox-street, St. George, Hanover-square (Messrs. Harrison & Ward for Mr. A. L. Langman).—Consent.

Hampstead.—A deviation from the plans sanctioned on March 7, 1899, for the rebuilding of the "Horse and Groom" public-house, No. 68, Heath-street, Hampstead, by the substitution of a wood and glass partitution for the 9-inch brick wall to separate the bar from the approach to the staircase leading to the upper floors (Mr. K. D. Young for Messrs. Young & Co.'s Brewery, Limited).—Refused.

St. George, Hanover-square.—Certain deviations from the plan certified by the district surveyor, under Section 43 of the London Building Act, 1894, so far as relates to the proposed rebuilding of the "Coach and Horses" public-house, No. 16, Conduit-street, St. George, Hanover-square (Messrs. Gardiner & Theobald for Mr. H. A. Lloyd).—Refused.

Width of Way and Space at Rear.

Whitechapel.—That the Council in the exercise of its powers under Sections 13 and 41 (1) (vi.) of the London Building Act, 1894, do not consent to, nor allow, the erection of a building on the site of Nos. 1 and 2, Tenter-street, Spitalfields, at less than the prescribed distance from the centre of Tenter-street and Emery's-place respectively, and with an irregular open space at the rear (Mr. L. G. Hasluck for Mr. S. J. Berlinski).—Agreed.

Kensington, South.—That the Council, in the exercise of its powers under Sections 13 and 41 of the London Building Act, 1894, do not consent to, nor permit, the erection of an addition to stable premises on the eastern side of King-street, Kensington, at less than the prescribed distance from the centre of the street, and with an open space at the rear (Mr. H. Fagg for Mr. J. Robinson).—Agreed.

Formation of Streets.

Woolwich.†—That an order be issued to Mr. G. F. Logsdail, sanctioning the formation or laying out of new streets for carriage traffic upon the Eltham Park estate, High-street, Eltham (for Mr. A. Cameron Corbett, M.P.). That the names Westmount-road, Glenesk-road, Berryhill-road, Crookston-road, Dairsie-road, Deansfield-road, Dumbreck-road, Elibank-road, Earlshall-road, Greenvale-road, Dunvegan-road, Grangehill-road, Craigton-road, Glenlea-road, Glenlyon-road, Glenshiel-road, Glenure-road, Cramond-road, Crathie-road, Greenlaw-road, Balcaskie-road, Beechhill-road, Glenhouse-road, Gourock-road, Elderslie-road, and Greenholm-road be approved for the new streets.—Agreed.

Cubical Extent.

Greenwich.—The erection on the east side of Victoria-road, Old Charlton, of a building to exceed in extent 250,000, but not 450,000, cubic feet, and to be used only for the purposes of the manufacture of electric cables (Mr. S. Paterson for Johnson & Phillips' Electric Cable Works).—Refused.

Conversion of Buildings.

Southwark, West.—That the Council, in the exercise of its powers under Sections 13, 207, and 211 of the London Building Act, 1894, do allow the conversion of No. 97, Southwark-street, Southwark, from a sample store to dwellings for the working classes (Mr. W. E. Riley for the Housing of the Working Classes Committee of the Council).—Agreed.

St. George-in-the-East.—That the Council in the exercise of its powers under Sections 207 and 211 of the London Building Act, 1894, do not allow the conversion into a block of dwellings of a factory building on the east side of Grove-street, Southwark (Mr. E. Crosse for Mr. H. Richardson.)—Agreed.

Whitechapel.—That the Council in the exercise of its powers under Section 211 of the London Building Act, 1894, do not allow the conversion into dwelling-rooms of a loft over a stable at No. 17A, Heneage-street, Whitechapel (Messrs. Staines & Son for Messrs. Thomas Tilling, Limited).—Agreed.

The recommendations marked † are contrary to the view of the Local Authority.

The Student's Column.

ROADS: THEIR CONSTRUCTION AND MAINTENANCE.

PART III.—CONSTRUCTION (*continued*).

16.—PREPARATION OF THE ROAD BED.

WHEN the line of road has been determined in accordance with the principles which have been laid down, a careful survey of the ground must be made, as a result of which the first location is often altered somewhat. Deviations may be found to be necessary for the purpose of avoiding difficult ground, or, in the case of cuttings, to secure a proper balance between excavation and embankment. The latter point cannot be secured without first calculating the quantities of earth to be removed. This may be done with sufficient accuracy by reference to tables familiar to engineers. For those, however, who have not access to such tables, the following method will be found useful. Let A B C D, fig. 1, represent a profile or section of any cutting. By drawing the perpendiculars, C E and D F, the area of the figure is broken up into the rectangle C F, and the right-angled triangles, B E C, A F D, which are readily calculated. Now, any alteration of the depth of the cutting will involve a proportionate alteration in the area. Thus, if the depth is doubled, the area of the trunk or rectangular portion is also doubled; but that of the triangular portions will be increased four times. In other words, the area in the latter case varies as the square of the depth, as is evident from the figure. If the depth of the cutting, A C D B, therefore, be taken as 1 ft., the area of a cutting 5 ft. deep will be made up of the sum of five times the area of the rectangle, C E F D, and twenty-five times the area of the triangles, B E C, A F D.

Knowing the area of a profile, the cubic content will be found by multiplying this area by the length of the cutting. If the cross section changes, the cutting must either be divided into lengths having the same profile, or an average profile must be drawn at some intermediate point. The volume of an embankment will not generally be the same as that of the cutting from which the earth was taken.

Light sands occupy about the same space in excavation and embankment; but clays occupy $\frac{1}{10}$ less in embankment, gravels about $\frac{1}{12}$ less. Large rock fragments, on the other hand, occupy about $\frac{5}{12}$ more, and in small fragments $\frac{3}{5}$ more. These estimates will, however, vary somewhat according to whether the earth is shot from carts or from wheelbarrows, the former producing greater compactness than the latter.

When every circumstance has been duly considered, and the line of road finally determined, the next step is to prepare the road bed. The proposed course is first marked out by driving a stake into the ground, at intervals of one chain, along the centre of the future roadway. Levels are then taken along the line, from which a *working section* is constructed. This should be on a large scale, the horizontal scale being not less than $\frac{1}{3960}$, or 5 chains to the inch, and the vertical scale $\frac{1}{240}$, or 20 ft. to the inch. On this section the position of all necessary cuttings, embankments, bridges, or culverts can be shown, with their dimensions; the depth of cuttings and height of embankments being given with reference to the *formation surface*, which is the level to which the surface of the ground is to be formed to receive the foundation of the road. Upon this working section other information can be subsequently put, such as the cubic contents of cuttings or embankments, and the angle of slope necessary for each. A *working plan* is then constructed on the same scale as the section, on which will be shown the position of the centre stakes, the width required for the road, and the extra width necessary for slopes. These widths are then set off on the road by rows of stakes, when the side lines can be marked off by cutting a continuous furrow, about 5 in. wide, called a "lock spit," from stake to stake along the margins of the road. The changes of gradient are then indicated by stakes having a cross piece, which are brought to the proper height of the formation surface at convenient intervals. This may be conveniently done by means of "boning staves" and pickets. The former are pieces of wood, having a cross piece on the top, and of uniform length, say 4 ft., (see A, B in fig. 2). When these are brought to the desired slope, pickets are driven into the ground at intervening points, and adjusted to a uniform level below the line of sight between the tops of the boning staves, by means of other boning staves held so that the tops coincide with the line of sight through A, B. Of course, where deep cuttings have to be made, this proceeding must be delayed until the cutting has nearly reached the desired level. The formation surface can then be made to the desired slope by cutting or filling the ground to the levels indicated by the pickets. The marginal stakes are then brought to the proper level to allow for the required amount of fall from the centre of the road.

Cuttings and Embankments.—Before commencing the cuttings, trial pits should be sunk at intervals along the line in order to determine the nature of the rock material, the slope at which the sides will stand, and also the slope at which the material will stand in embankment. Even rocks which will stand at a high angle of inclination should be excavated so that the slopes are at least 1 in 2, in order that the road, when finished, may have a sufficient amount of air and sunshine to keep its surface dry. In deep cuttings this proportion may be conveniently increased and the sides may even be *benched* with advantage. Where long slopes are necessary for stability it may be cheaper in certain cases to lessen the slope and secure the sides by retaining walls. This is more particularly the case where material for stone walls is plentiful. In such localities short stone walls at the foot of the slope may be useful in preventing rain-wash from the sides of the cutting from being carried on to the road. In other cases this end may be secured by sodding the sides of the cutting, or by sowing with grass seeds.

Embankments are generally constructed from the material derived from cuttings, and the angle of slope of the embankment will depend upon the nature of this material and its proper angle of repose.

The following table gives the natural slopes of some common kinds of earth, the angles being, with reference to the horizontal plane:—

Wet clay	16 deg.
Wet sand	22 ,,
Vegetable soil	28 ,,
Dry sand	38 ,,
Shingle	39 ,,
Gravel	40 ,,
Rubble	45 ,,
Well-drained clay	45 ,,
Compact earth	50 ,,

Compact rocks will stand in cuttings at higher angles than these. Chalk and limestone will often stand with a vertical face, and likewise sandstone, provided in each case that highly inclined jointing or bedding planes do not dip towards the face of the cutting.

On hillside ground, where the slope is not too steep, one side of the road is generally in cutting and the other in embankment. On steep slopes, however, where the inclination is greater than 1 in 2, embankments would be too unstable, and the whole road must be in cutting, with the addition, when necessary, of retaining walls. All slopes should be trenched before embanking upon them, in order to give the necessary amount of support to the foot of the embankment.

Before commencing an embankment, all vegetable soil should be removed from the area on which it is to rest, and all perishable matter should be carefully excluded from the materials employed for its construction. The earth should be deposited first on the outside margins, and the section should be kept concave by having the bottom slightly narrower and the top slightly wider than is finally desired. It can afterwards be trimmed to the proper slope.

The allowance which must be made for

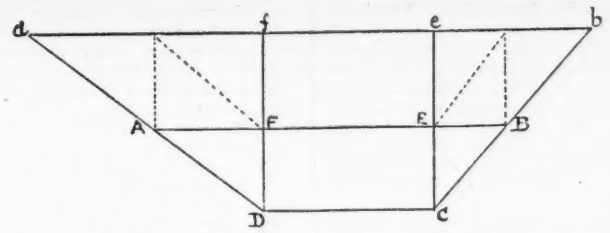


Fig. 1.—Calculation of Solid Contents of Excavations or Embankments.

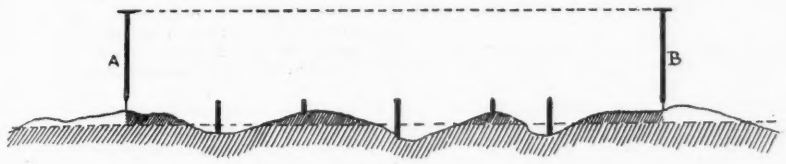


Fig. 2.—Simple Method of Levelling.

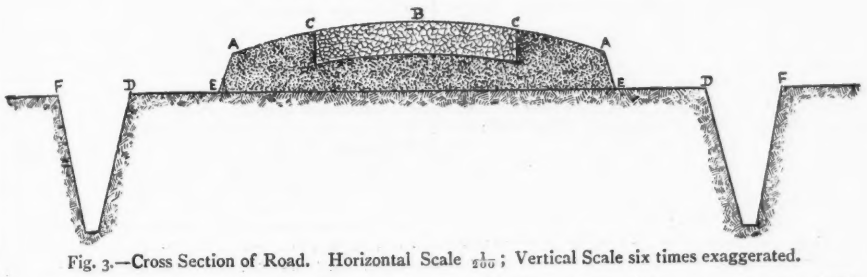


Fig. 3.—Cross Section of Road. Horizontal Scale $\frac{1}{200}$; Vertical Scale six times exaggerated.

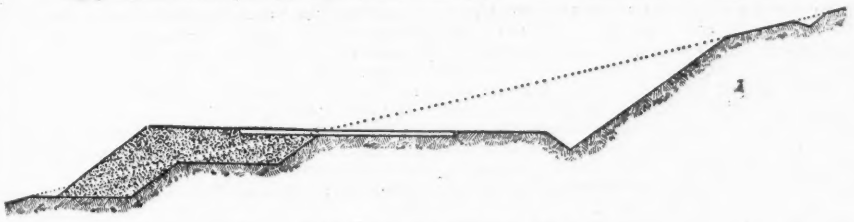


Fig. 4.—Road Section on a Hill Side. Scale $\frac{1}{200}$.

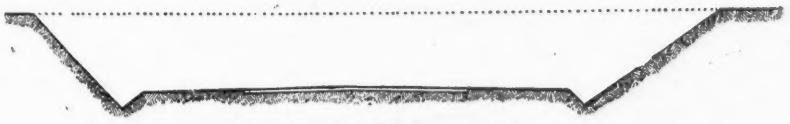


Fig. 5.—Road Section in Cutting. Scale $\frac{1}{200}$.

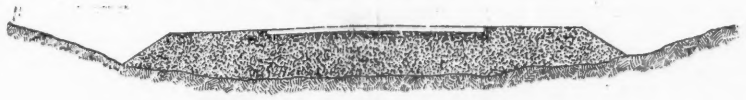


Fig. 6.—Road Section in Embankment. Scale $\frac{1}{200}$.

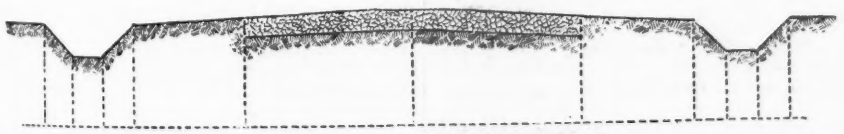


Fig. 7.—Road Section; Natural Surface. Scale $\frac{1}{200}$.

Illustrations to Student's Column.

settlement depends both upon the nature of the material and the way in which the embankment is constructed. Properly speaking, the earth should be deposited in layers of not more than 4 ft. each, and well rammed before the next layer is deposited; but in practice this is seldom done. On wet, marshy soils some artificial foundation is necessary. This may consist of layers of brushwood, or the wet ground may be excavated and filled in with sand or gravel. The foot of embankments can be further secured, if necessary, by a low stone wall, or by the excavation of a trench along the outer margin. With such precautions the allowance for settlement need not exceed more than from 1 in. to 2 in. per foot in height.

In the event of a failure to balance exactly the cuttings and fillings, any deficiency of soil for embankments must be made good by *side cuttings* made at some favourable spot; while any surplus material over and above what is required for embankments is deposited in a *spoil bank*, situated at a distance back from the slope of the cutting, on the lower side of the hill contours.

Form of Cross Section.—There is some difference of opinion as to whether the formation surface should be convex or flat. Telford's practice was to make the road-bed flat, the final convexity of the surface being obtained by a thicker road coating in the centre. Some engineers still favour this plan, while others prefer to grade the road-bed parallel to the finished surface. Probably if the road-bed is impervious, a convex surface would ensure better drainage, although practically the road metal becomes so merged into the bed that there is no marked plane of division between them. It must be remembered also that the Telford road, with its hand-set substratal pavement, has a natural sub-drainage, which to some extent obviates the necessity of a convex bed. One great advantage of a convex bed, however, is that it enables the same thickness of metal to be laid over the whole road, instead of having a thick layer only in the middle.

There is also considerable difference in modern practice as regards the width of roads. Too wide a road is not only more expensive to contruct but also may involve a greater annual cost in repairs. At the same time it must not be supposed that, within reasonable limits, the expense of metalling is directly proportional to the road width. With equal traffic a narrow road wears more than a wide one, in which the traffic is distributed over a larger area. Theoretically, therefore, a road of reasonable width should not cost more for repair than one on which all the wear is concentrated upon a narrow track.

The statute turnpike roads of England were required to be laid out 66 ft. wide, of which 22 ft. were metalled. The same width is laid down for French roads of the first class. The Telford specification provided for a central portion 18 ft. wide, metalled with hard stone, and a further width of 6 ft. on each side, coated with gravel. It is evident, however, that a hard-and-fast rule cannot be laid down, a great deal depending upon the nature of the traffic. In the vicinity of important towns a width of 30 ft., with a 6 ft. footpath on each side, is necessary; and even 34 ft. will be sometimes required; whereas in a country road a sufficient width to enable two vehicles to pass one another easily is alone needful, for which purpose 18 ft. will be enough. Whatever width may be adopted, the road bed should not be excavated until after the embankment has been made up to the full height.

The accompanying diagrams will illustrate forms of the cross section which will be found convenient in certain cases. Of course, the exact shape of the cross section will depend to a great extent upon the kind of road which is to be made. This may be one of the following varieties:—

1. Natural earth surface.
2. Gravel road.
3. Broken stone road, without foundation.
4. Broken stone road, with foundation.
5. Paved road.

For the present it will be assumed that a broken stone road, without special foundation, is required, the other cases being deferred to subsequent articles.

In fig. 3, the road bed rests upon the natural surface of the country, without embankment or excavation, and the vertical scale is largely exaggerated for the purpose of showing more clearly the relations of the different parts. The road bed, in this case, is shown raised above the natural surface to a height of 12 in. at B, and 6 in. at C, the necessary material for which is obtained by the excavation of the side ditches. The object of this is to secure more efficient drainage, and also to form the required slope of the road surface, which amounts to about one inch in 3 ft. The dimensions of the side ditches are 7 ft. at the top, 1 ft. at the bottom, and 2 ft. in depth. The metalled portion of the road is 18 ft. wide and 6 in. deep; and in addition to an unmetalled portion, 8 ft. wide on each side, A C in the figure. There is also a ledge, or berme, of a similar width, for the purpose of planting trees or hedges. It may, however, be stated that some engineers prefer that all planting should be done on the far side of the ditch.

In fig. 4 we have a section of a road bed on a hill side. In this case the vertical and horizontal scale are the same, and the true proportions are therefore shown. The road in this case is partly in cutting and partly in embankment, the dotted line representing the natural slope of the ground. The slope on which the embankment is deposited has been benched to afford a proper amount of support, and the embankment has been constructed with a suitable angle of slope, in this case in the proportion of 1½ horizontal to 1 vertical. The road-bed is also made to slope slightly inwards towards the hill side, the fall being 1 ft. vertically in the whole horizontal width, 34 ft., of the roadway. The amount of the road in cutting should be made to balance the quantity of material required for the embankment. The reason for sloping the road inwards is to prevent the water from running off the road down the embankment, which would thus quickly be worn into gullies. To carry off the surface drainage a shallow ditch, 3 ft. wide at the top, and 1 ft. deep, is constructed along the inner margin; and, in addition, the side of the cutting has a catch-water drain, situated 6 ft. from the edge of the cutting, to take off the drainage from the hillside above the road. As in the last example, only 18 ft., in the centre of the roadway, are excavated for metalling.

In fig. 5 the road is altogether in cutting, the dotted line representing the natural surface of the ground. The slopes of the sides of the cutting do not correspond, each being made to suit the particular circumstances of rock structure. The dimensions are similar to those in fig. 4; but in this case the road surface slopes from the centre to each side, where there is a ditch to receive the drainage. The amount of

fall is 6 in. in 17 ft., half the width of the roadway, and, as before, only 18 ft. are metalled.

In fig. 6 the road is in embankment, the height of which is 4 ft. at the margin and 4 ft. 6 in. in the centre, thus giving the necessary slope for surface drainage of 6 in. in 17 ft. The slopes of the embankment, as before, are made in accordance with the angle of repose of the materials, and are usually in the proportion of 1 ft. 6 in. horizontal to 1 ft. vertical.

Fig. 7 represents a road section of a somewhat different type to the preceding. The metalled portion is 19 ft. wide, and on each side there is a gravel or grass margin 6 ft. wide, and a ditch 5 ft. wide at the top and about 20 in. deep. The curvature in this case is 1½ in. per yard.

In all the above-mentioned examples the dimensions given must not be considered absolute. Considerations of locality, traffic, and expense will always necessitate variations in respect of the width and nature of country roads.

We have next to consider the preparation of the road bed to receive the covering of road metal.

OBITUARY.

Mr. George Marr.—After only a few days' illness there died at Aberdeen, on the 3rd inst., Mr. George Marr, architect, of the firm of Jenkins & Marr, civil engineers and architects. Deceased had a special acquaintance with the designing of paper-mill premises. He originally started professional practice in the parish of Ellon, Aberdeenshire, but since 1879 had been in company with Mr. G. Gordon Jenkins, civil engineer, Aberdeen. He was fifty-four years of age.

Mr. John Knight.—The death has just taken place of Mr. John Knight, A.M.Inst.C.E., who on March 11 last year was appointed Engineer to the Birmingham Tame and Rea District Drainage Board, and who had for many years been associated with the sanitary engineering work of the city. His death took place at his residence, Glen Cree, Silver Birches-road, Erdington, from pneumonia. Practically the whole of Mr. Knight's professional career was in the service of the Corporation and the Drainage Board. He entered early in life the office of the late Mr. Till, Borough Surveyor.

GENERAL BUILDING NEWS.

Restoration of St. Laurence's Church, Birmingham.—The Church of St. Laurence, Birmingham, has been undergoing restoration. The architects were Messrs. Franklin Cross & Brooks, and they estimated that the necessary scheme of renovation would cost at least 1,400*l.* Under the circumstances it was decided to divide the work into three parts. Increased light has been afforded by the insertion of a two-light lancet window in the chancel, and by raising the east window in the south aisle. The chancel has been raised and extended, and the pulpit removed to the limit of the new chancel. The choir stalls from St. Peter's, Dale End, have been placed in the chancel, and the pews in various parts of the church have been rearranged. The organ has been rebuilt on the north side of the chancel, and other minor alterations have been made.

Central Mission Hall, Sheffield.—On the 2nd inst. the new Central Hall, which has been erected in Norfolk-street to accommodate the Sheffield Workmen's Mission, was opened. The main hall, which has a gallery running round it, and which provides sitting accommodation for about 550 persons, occupies the ground and first floor. The second floor consists of five class-rooms and an office. The basement is taken up with a kitchen, heating apparatus, storerooms, &c. The plans were prepared and the work supervised by Mr. J. D. Webster, and the contractor was Mr. James Fidler, both of Sheffield. The cost of the building, exclusive of land (which cost £2,990) will be about £4,000.

Central Primitive Methodist Church, Newcastle.—This church is situated in Northumberland-road, Newcastle. The new building is to take the place of the old chapel in Nelson-street, which has been sold for business purposes. The church will seat about 500 worshippers, most of the sittings being on the ground floor; while the schoolroom has been built to accommodate about 500. The other portions of the building comprise a church parlour, library, minister's vestry, stewards'-room, and class-rooms, with infants' school and tea-rooms adjoining the main schoolroom. The principal elevation, facing Northumberland-road, is of stone. The principal contractor is Mr. A. Bruce, of Newcastle, and the work has been designed and carried out by Mr. T. Davidson, architect, of Newcastle, Mr. W. Moore acting as clerk of works.

Magdalene Church, Donegall Pass, Belfast.—The foundation stones were laid on the 30th ult. of the Magdalene Episcopal Church, Donegall Pass. The architect of the new church is Mr. S. P. Close, and the builder Mr. James Kidd. The building will be erected on the site of the old edifice, and will be Gothic in style. The church will be 106 ft. by 75 ft., and will accommodate about 700 persons. The cost of the structure will be about 5,000*l.*, which will include vestry and adjoining hall, &c. The building will be of local stone, with Scotch white stone dressings to windows, &c. The internal stonework will be of Bath stone throughout, and the woodwork of the building will be polished pitch pine.

Primitive Methodist Church, West Ealing.—Memorial stones have just been laid of a new Primitive Methodist Church at West Ealing. Messrs. Wray & Hallam, of West Ham, are the architects.

Church, Stepps, N.B.—The foundation stone of the new Established Church, Stepps, was laid recently. The church is designed to hold 400 persons. The plan includes a nave with a side aisle and transept, and a chancel for the Choir and the Communion-table. The vestry is at the side of the chancel, with which it is connected by an open archway. The architect is Mr. P. Macgregor Chalmers, Glasgow.

Restoration of Holy Trinity Church, Hull.—Holy Trinity Church, Hull, has just been re-opened after restoration. The whole of the work has been carried out under the superintendence of Messrs. Brodrick, Lowther, & Walker, architects, of Hull. The cleaning of the interior of the church has been done by Messrs. Bowman & Son, of Stamford; the heating by Messrs. Haden, of Trowbridge; the electric light by Messrs. King & Co., Hull; and the decorations by Messrs. Dreyer & Co., of Hull. The contract for the reparation work to the exterior of the church has been given to Messrs. Quibell & Son, of Hull, but owing to the strike the work has not been commenced.

Improvements at Knowle Church, near Birmingham. — At Knowle Parish Church various structural alterations are in progress. The chancel is being re-arranged, and under the scheme the organ and choir will be removed into the chancel, and the north chapel, with its traceried windows, opened out to the church. The necessary plans for the new clergy and choir vestries and organ-chamber have been prepared by Mr. J. A. Chatwin, of Birmingham, and the contractors are Messrs. Collins & Godfrey, of Tewkesbury.

Re-opening of Brunswick-street Chapel, Huddersfield.—The Brunswick-street Free Wesleyan Chapel was re-opened recently after various structural alterations, &c. Two vestries have been provided under the gallery on each side of the pulpit. One of these is for the use of the choir, and the other is to be devoted to the purposes of a Dorcas room. The lobbies at the entrance to the chapel have been widened, and the heating apparatus has been extended by Messrs. Tomlinson & Milan, who have carried it into the gallery. There has been an installation of the electric light by Messrs. Read Holliday & Sons, Limited. The decorative work has been carried out by Mr. J. H. Stuttard. The whole work has been under the superintendence of Alderman B. Stocks, of Huddersfield.

The Willaston School, Nantwich.—The foundation-stone of the Willaston School was laid on the 28th ult. The school is situated on the Grove estate, about a mile from the town of Nantwich. The buildings, which are being erected by Messrs. Neill & Sons, Manchester, from plans prepared by Mr. J. W. Beaumont, architect, also of Manchester, will be rectangular, enclosing a courtyard. They will comprise a schoolhouse (including the headmaster's house), four class-rooms, a dining hall, three dormitories (for twenty, ten, and ten boys respectively), a library and reading-room, and studies for the senior boys; covered playground, workshop, gymnasium, and cycle-house, and a sanatorium for infectious cases, detached from the school buildings and on the opposite side of the road. The sickroom of the school will be away from the dormitories and adjoin the headmaster's house. Dormitory accommodation will be provided in the first instance for forty boys. In other respects the buildings will be sufficient for sixty.

Board School, Reading.—A new Board school has just been erected in Swansea-road, Reading, to accommodate about 1,000 children. It is the first Board school erected in Reading of two stories on the mixed system for boys and girls. Mr. George W. Webb was the architect, and his plans have been carried out by Mr. W. Hawkins. Mr. George White was clerk of the works. The building was designed in such a manner as to utilise the basement for swimming baths. Owing to the site being a very bad one, all the walls were built on piles, and these were driven until they reached a good solid bottom. During the progress of the buildings the Educational Department requested the Board to provide increased accommodation in the town, and it was suggested as an easy means of partially meeting the requirement, that the manual instruction and cookery rooms, provided at the end of the building, should be converted into two class-rooms of fifty each, thus providing accommodation for 100 additional children. This received the approval of the Educational Department. The school contains, on the ground floor, a large central hall with an area of 2,060 ft. There are nine class-rooms on the ground floor, of various sizes, for the infants and junior mixed departments, a room for the head master, and one for the mistress and her assistants, with cloak-room and lavatory accommodation. The first floor consists of a central hall the same size and area as that on the ground floor, with ten class-rooms for the senior mixed department—boys and girls. The total accommodation provided is for 980 children. The total frontage of the main building to the Swansea-road is 164 ft., with a return frontage to the York-road of 62 ft. The total height from the old ground level to the ridge of the central hall is 60 ft., and to the top of the vane on the bell turret is 80 ft. The cookery centre consists of a kitchen and scullery, for the instruction of girls in cookery. It was decided in lieu of a workshop for instruction in carpentry to provide a school for manual training in metal work. A covered play-shed for boys is attached to this building.—*Reading Mercury.*

Chippenham Technical and Secondary Schools.—The foundation stone of this building was laid on Saturday last. The contract for the building, exclusive of fittings and cost of land, is 4,310*l.*, the contractors being Messrs. Smith & Light, of Chippenham, Wilts, and the architect, Mr. Robert E. Brinkworth, also of Chippenham, whose plans were selected in competition.

The Corporation Markets, West Smithfield.—We learn that the Corporation have arranged to open their former Snow-hill and West Smithfield fish-market as a meat-market, and that some extensive structural alterations have been carried out to adapt the building for the new traffic; in the immediate vicinity, in King-street, the London Central Markets Cold Meat Storage Company have constructed, partly beneath the surface, new cold-air refrigerating stores. In February last year the Corporation at a cost of 20,000*l.* transferred the market for fish from the buildings we mention—built by Mark Gentry after designs by the late Sir Horace Jones, and opened on November 7, 1888—to a new site in the middle of the vegetable, fruit, and flower market, erected (in lieu of Farringdon Market), near Farringdon-road, by Messrs. Rudd & Son, of Grantham, and Messrs. Perry & Co., of London, from the plans and designs of the late Mr. Alexander Peebles, City architect, and opened on June 13, 1892. The former fish market, opened in May, 1883, was converted six years afterwards for the sale of poultry and provisions, the fish traffic therein proving very unprofitable.

Building Scheme, Birmingham Young Men's Christian Association.—For the Young Men's Christian Association of Birmingham the site has been secured of the abandoned church and schools of St. Peter's, Dale End, in order that the present premises in Needless Alley may be replaced by a more suitable building. It is proposed to erect a block of buildings at a cost of 42,000*l.*, from the designs of Messrs. Ewen & J. A. Harper, architects, Birmingham. The elevation to Dale End will have five stories, and will rise to a height of 80 ft. from pavement to apex of centre gable. It is intended to have four shops on the ground floor. On this floor there will also be a reception-hall, or lounge, leading out of the vestibule; minor hall to seat 250 to 300 persons; offices for secretary, assistant-secretary, and staff; large gymnasium at the back of the premises, with gallery and running track. The accommodation in the basement will include dining and tea rooms for members and associates and for the public, recreation-rooms, plunge, needle, and spray baths, dark-room for photographic purposes, cycle-stable, and a large room, with lockers, to be let to members and associates. It is proposed to let off four rooms on the first floor for offices, and to provide two rooms for association work. At the back will be the large hall, with accommodation for 1,000 persons. On the second floor there will be three class-rooms and a young men's parlour; a coffee and sitting room for the boarders. Six rooms here will be let as offices. On the third, fourth, and fifth floors will be forty-seven bedrooms for boarders, and accommodation for the household staff.

Theatre, Broughton, Manchester.—A new theatre, to be called the Victoria, is being erected in Lower Broughton. The theatre is being built by the Broughton Theatres Syndicate, Limited, on a site at the corner of Great Clowes-street and Elton-street, from plans prepared by Mr. Bertie Crewe, of London. It will have a main frontage of 74 ft. on Great Clowes-street side, and a depth of 180 ft. along Elton-street and Picton-place. It is to be a two-tier house, with seating capacity for 2,200 people. The auditorium will be fireproof, lighted by electricity. The stage will be 72 ft. wide by 40 ft. deep. The approximate cost of the scheme will be about 15,000*l.* The main front to Great Clowes-street will be of red terra-cotta, containing the main entrance to the theatre and three shops. The builders are Messrs. W. Brown & Son, Salford.

Additions to the Y.M.C.A. Buildings, Ipswich.—A social room has been added to the Y.M.C.A. buildings in Tavern-street. The architects were Messrs. Eade & Johns, and the building work has been executed by Mr. Edgar Catchpole.

St. Deiniol's Library, Hawarden.—The foundation stone was laid on the 5th inst. of St. Deiniol' Library, Hawarden, and the building, when completed, will form part of the national memorial to the late Mr. Gladstone. The site of the new library is in a field a little to the south of the building in which the books are at present lodged,

and to the south-west of the hostel, which it is intended to eventually rebuild and to join to the library. The accommodation provides a room 30 ft. by 45 ft., with a gallery round, for the library, and at the north end of it the divinity-room, 30 ft. by 25 ft. Leading from the latter will be the warden's room, and also several studies. The new library building will be of Gothic character. The contract for the work has been entrusted to Messrs. Parker Bros., of Chester. The architects are Messrs. Douglas & Minshull, also of Chester.

NEW MUNICIPAL BUILDINGS FOR DUMBARTON.—The memorial stone has just been laid of the new municipal buildings for the burgh of Dumbarton. It is estimated that the cost of the buildings will be about 15,000*l.*, the architect being Mr. James Thomson, Glasgow.

NEW WING, YORKSHIRE SCHOOL FOR THE BLIND, YORK.—A new wing is to be built in connexion with this building, from plans prepared by Messrs. Demaine & Brierley. It will be at right angles to the front of the Blind School, and will extend from the west doorway of that building towards the corner of the Exhibition, from which it will be separated by a cartway 12 ft. wide. There will be a corridor connecting the sick-rooms to the main building, which will be kept as low as possible, so that the view of the entire front of the school from Exhibition-square will be retained. The sick-rooms will consist of separate wards for boys and girls, each 20 ft. by 14 ft., with nurses'-rooms, ward-kitchens, bath-rooms, lavatories, &c. The superintendent's house will adjoin the sick-rooms. The contractors whose tenders for the work are accepted are:—For the brick and stonework, Mr. W. Anelay; carpentry and joinery, Mr. W. Bellerby; plumbing and glazing, Mr. H. Hopkins; slating, Messrs. Dodgson & Son; plastering, Messrs. F. Rawling & Son; painting, Messrs. Bellerby & Sons. The estimated cost is about 4,000*l.*

SOLDIERS' INSTITUTE, DOVER.—A new institute, known as the Soldiers' Victoria Hall, has just been opened on the Western Heights at Dover. The building, which at present contains recreation and reading-rooms (adapted also for use as a concert hall), a devotional room, lavatories, kitchen, and caretaker's quarters, &c., has so far cost 2,200*l.*, and in its complete form will comprise baths and a billiard-room. The walls are faced with local stocks and the roof slated, a pleasant feature of the building being a wide verandah on the south running the whole length of the structure. The builders are Messrs. Johnson & Sons, of London and Dover, and the architect is Mr. W. Beeston, of Dover.

BANK PREMISES, LIVERPOOL.—New premises are being erected in Castle-street, Liverpool, for Parr's Bank, Limited. The banking hall is 60 ft. in diameter and 20 ft. high, lighted by a circular dome light 20 ft. in diameter. The walls of the area separating the front and back offices are carried over the circular hall by steel girders. Below the ground floor are placed the bank's strong rooms and treasury. It is intended that the floors above the bank shall be let as offices. The architects are Mr. R. Norman Shaw, R.A., and Messrs. Willink & Thicknesse; and the contractors are Messrs. Jones & Sons, of Liverpool.

TECHNICAL SCHOOL, SUNDERLAND.—The foundation-stone has just been laid at Sunderland of a technical school. In 1896 the site in Green-terrace was purchased for 3,150*l.* Competitive designs were then advertised for, with the result that the first premium of 100*l.* was awarded to Messrs. Potts, Son, & Hennings, of London and Manchester, for the design from which the work is being carried out. The contract has been let to Mr. J. W. White, of Sunderland, the cost being about 18,000*l.* According to the plans, the main corridor is 8 ft. wide. There is an examination hall 50 ft. by 30 ft., and a chemical laboratory 70 ft. by 30 ft. Total space is here provided for eighty-four workers, and in the chemistry lecture theatre there is seating accommodation for sixty students. The physics laboratory, physics lecture theatre, and preparation-room are all placed in the basement.

THE JOHN RYLANDS LIBRARY, MANCHESTER.—The John Ryland's Library in Deansgate, Manchester, was opened on the 6th inst. The main idea of the building, says the *Manchester Guardian*, is that of a college library, that is to say, the library proper consists of a large central hall from which reading recesses open on either side. The site faces Deansgate, and is bounded on the north-east and south-west by Wood-street and Spinningfield, both narrow streets, containing buildings of considerable height. With a view to obtaining adequate light for the library itself, the library is placed on the upper floor and is set back some 10 ft. from the building line. On the lower floor a cloister or corridor, giving access to the ground-floor rooms, occupies the remaining space, and is kept low so as to admit of ample windows being introduced above for lighting the ground-floor rooms. The main entrance is from Deansgate, and the whole of the front is occupied by a vaulted vestibule, above which are the librarians' rooms. The floor of the vestibule is considerably below that of the ground-floor rooms. A short flight of steps leads up the centre of the vestibule, parting towards the left and right landing on the ground floor level, and giving access to the cloistered corridors whence all the first floor rooms are reached. Facing this approach is an allegorical group representing Religion, Science, and Art, executed by Mr. Cassidy. From the vestibule level stairs on either side lead down to lavatories in the basement, and from the landing on the ground floor level a staircase leads to the first floor, giving immediate access to the librarians' rooms and to the main library. The ceiling of this staircase is at the full height of the front portion of the building, and shows an octagonal lantern surrounded by a gallery. It is stone, vaulted throughout. The staircase, which occupies one of the towers, passes into a vestibule in the library proper, and the vaulted ceiling is some 52 ft. from the first floor. The ground floor contains a large and two small conference rooms, occupying the front portion of the building towards Deansgate. These are all panelled with oak, and have ceilings of modelled plaster panels divided by oak ribs. Behind these the ground floor is divided by a cross corridor, vaulted, which gives access to two rooms in the rear of the main building, and is rendered accessible by a separate entrance from Wood-street. Behind these rooms and in communication with them, and with a hydraulic lift and the upper floors, are receiving and packing rooms connected with a cart entrance in Wood-street. These again have communication with the basement, which is coextensive with the main buildings, and contains chambers with fireproof doors for the preservation of muniments, and for the warming and ventilating apparatus, and other spaces. Behind the main building is a chamber on the basement level, in which are the engines and dynamos for the electric lighting. On the first floor, opening immediately from the main staircase, and having direct communication with the library proper, is the librarians' department. The library consists of a central corridor, about 20 ft. wide and 125 ft. long, ending in an apse at the further end, which gives an extreme length in all of about 148 ft. It is 44 ft. from the floor to the top of the vaulted ceiling, and is groined throughout in stone. It is divided into eight bays, one of which is occupied by the main entrance, while the rest open into reading recesses giving on this floor fifteen recesses occupied by bookcases. The end bay on either side projects so as to form a sort of transept for the building. The transept on the Wood-street side forms a recess of increased size. On the Spinningfield side a recess of ordinary size gives access to the map-room. The recess opposite the main entrance gives access to a cloakroom and to a separate room of considerable size, which is the Bible-room. The apse is occupied by bookcases, and adjoining it are, on one side, the entrance to the liftroom and reading-room, a vaulted and panelled chamber, underneath which are kitchen and scullery and a staircase communicating with the lower floors; on the other a sink-room and a spiral staircase for attendants. Two staircases lead from the ground floor to the upper floor of the library, which is arranged on somewhat similar lines. A gallery runs completely round the central space, giving access to the several reading spaces and chambers. The two tiers of chambers, attaining together to a height of about 30 ft., leave space above for a large clearstory, in the blind panels of which are carved mottoes in raised letters. Above the shafts supporting the gallery are a series of portrait statues representative of Literature, Science, and Art. A large traceried window at either end of the building is filled with a series of figures of great philosophers and writers pourtrayed in stained glass by Mr. Charles Kempe. To the rear of the building is a house for the caretaker, separate from but in immediate communication with the main building. The material used is mainly stone from quarries in the neighbourhood of Penrith. That used for the interior is Shawk, a stone varying in colour from delicate red to grey; and for the exterior is Barbary plain stone, which has a uniform tint of a darker red. The bookcases have been arranged after a careful study of those cases in the British Museum which contain the most valuable antiquities, and have been executed by Messrs. Clements Jeakes, of London. Nearly all the sculpture, both figures and floral, has been done by Mr. Bridgeman, of Lichfield. The heating is by batteries of hot-water pipes, through which air is passed after filtration through screens from the exterior. The electric lighting has been executed by Mr. Thomas, under the supervision of Mr. Charles Hopkinson as consulting engineer. The electric fittings are by Messrs. Singer, of Frome, as are also the coil-cases and much of the other metal work. The building is almost entirely vaulted in stone, but where this has not been admissible fireproof construction is used, after Messrs. Homan & Rodgers' system, the main floors being of a double thickness of fireproof with space between. The plaster modelling is by Mr. George Frampton, A.R.A. Messrs. Morrison, of Liverpool, have carried out the entire work, except the foundations, and Mr. Stephen Kemp has been clerk of works from commencement to finish. The architect was Mr. Basil Champneys.

A NEW CIRCUS FOR BIRMINGHAM.—On the 5th inst. a private view was held of the Tower of Varieties and Circus in Hurst-street, Birmingham. The architect was Mr. F. W. Lloyd. There is accommodation for 4,000 people.

PUPIL TEACHERS' CENTRE, SHEFFIELD.—On the 9th inst. the new Pupil Teachers' Centre, which is situated in Holly-street, and adjoins the Central Higher School, was opened. On the ground floor there are three classrooms, which, being divided by movable partitions, may be converted into a hall 67 ft. long by 25 ft. wide, for joint classes or lectures. The principal's room is on the left, and on the right is the mistress's room. The second floor is approached by two stone staircases, one for the use of the male students, and the other for female pupil teachers. On this floor there are rooms for the assistant master and assistant mistress. Upon the main and mezzanine floors are a library, rooms for the staff, accommodation for the caretaker, and cloak and store rooms. The interior of the building is finished with white glazed brick linings to the staircases and hall, and cement dadoes to the rooms. All the woodwork is of pitch pine, varnished. Mr. Herbert W. Lockwood, of Sheffield, was the architect, and Mr. James Fidler, Sheffield and Eckington, the contractor. Mr. Frank Tory executed the carving, and the ventilator and warming apparatus were fixed by Mr. William Key, of London and Glasgow.

ADDITIONS TO WEST SUSSEX ASYLUM.—Colonel C. H. Luard, R.E., Local Government Board Inspector, attended at the Council Chamber, Chichester, on the 5th inst., for the purpose of inquiring into the application of the West Sussex County Council for sanction to borrow 57,945*l.* for additions to the County Lunatic Asylum at Chichester. Mr. Paul (from Sir A. Blomfield & Sons, the architects) produced copies of the plans already approved by the Home Secretary, and these were examined by the Inspector.

PUPIL TEACHERS' CENTRE, WOLVERHAMPTON.—The foundation-stone has just been laid of the Wolverhampton Pupil Teachers' Centre, in Old Hall-street. The new buildings will consist of a two-story block, which, when completed, will provide accommodation for 240 pupil teachers at one time, with a block at the rear for a seventh standard school, giving accommodation for 240 children. This latter, however, is not included in the present contract, the seventh standard children being for the present accommodated in the upper floor of the main building. On the ground floor the boys' entrance is on the west side, and the girls' on the east, opening into a common corridor 8 ft. wide, which is placed behind three classrooms facing the street, two for forty-two and one for thirty-six students. On the other side of the corridor is placed the gymnasium hall 55 ft. by 32 ft., also head-master's private room, and hat and cloak and lavatory accommodation for the students. The first floor is approached by two staircases, the mezzanine floor being appropriated for assistant teachers' rooms and for hats and cloaks. The arrangements on the first floor correspond with those on the ground floor, and in addition to the three classrooms an examination hall is placed over the gymnasium, and a large common room is provided for the use of students. A caretaker's house, with living-room, kitchen, and three bedrooms, is placed at the eastern side of the school block. Externally the building will be of a very simple character, the walls being faced with red bricks. The windows are of wood. The roofs will be covered with green slates. The work is being carried out by Messrs. Willcock & Co., of Wolverhampton, from the designs and under the superintendence of Mr. T. H. Fleeming, Wolverhampton, Architect to the Board. The silver trowel is of solid silver oxidised, with Irish bog-oak handle. It has been made by the Guild of Handicraft from the design by the architect.

SANITARY AND ENGINEERING NEWS.

PROJECTED IMPROVEMENTS IN ABERDEEN.—The Town Council has resolved to widen Union-bridge (which carries Union-street over the Denburn Valley) by a single arch. Mr. W. Dyack, Borough Surveyor, who prepared the plan, estimates the cost at 14,500*l.*——With respect to the proposed new water supply scheme for the city from the River Avon, Mr. Dyack and Mr. G. Gordon Jenkins, C.E., in a joint report, give details of three alternative routes, the one which they recommend being estimated to cost £1,019,000*l.* The length of aqueduct by this route would be 47¾ miles, the "cut-and-cover" and tunnel portion would from the outset be sufficient for a daily supply of 30,000,000 gallons, while there would be only fourteen miles of iron piping (to convey meantime 10,000,000 gallons daily), which can be duplicated when wished. The intake would be above the Loin Burn.——Mr. Dyack and Mr. Moonie, tramway manager, have submitted a report recommending extensions of Aberdeen Corporation Tramways to Torry, Ferryhill, and the sea-bathing station, together with electrical equipment of the whole system, at a cost of 279,951*l.*, besides 40,810*l.* for new cars.——Messrs. Walker & Duncan, C.E., have prepared for Aberdeen Baker Incorporation a feucing plan of the estates of Kincorth and Craigieshaw, on the south side of the Dee, showing a bridge over the river, which runs between Duthie Park and Allemale Cemetery There will be three crescents facing the river, and various new streets, from 40 ft. to 50 ft. wide.

WATER SUPPLY, KINGSBRIDGE, DEVONSHIRE.—Kingsbridge Urban District Council received recently the report of Messrs. John Taylor, Sons, & Santo Crimp, of London, recommending Place

Moor, in Morleigh, as a suitable scheme. There is a watershed of 155 acres, with no building upon it, mostly being moorland, the remainder arable and pasture. A storage reservoir could be erected at an elevation of about 380 ft. The estimated cost is 10,000*l.* It was decided to adopt the Place Moor scheme, and to take steps to obtain a Provisional Order.

STAINED GLASS AND DECORATION.

Windows, Clonfert Cathedral.—During the last few years a considerable amount of work has been accomplished in connexion with the restoration of Clonfert Cathedral, under the supervision of Mr. J. F. Fuller, F.S.A., architect. Two stained-glass windows by Messrs. Hardman, of Birmingham, representing St. Peter and St. Paul, have just been placed at the east end of the cathedral. These windows and a memorial brass have been given in commemoration of the Queen's Diamond Jubilee. A memorial pulpit of carved oak has also been placed in the cathedral.

Memorial Windows, Durham Cathedral.—Durham Cathedral has now two stained-glass windows in memory of Dean Lake, both in St. Gregory's Chapel in the north transept. One, a three-light window, was dedicated some weeks ago. The other has been inserted since by members of Dean Lake's family. It is a single-light window and represents St. Nicholas. The window was designed and executed by Messrs. Clayton & Bell.

FOREIGN.

France.—The equestrian statue of the Duc d'Aumale will be inaugurated to-morrow, October 15, at Chantilly. It is the work of M. Gerôme. M. Daumet, architect, designed the pedestal.——The Sensée Canal, situated between the junction of the Scarpe, near the Douai, and the Escaut, will soon be undergoing extensive alterations, in order to facilitate the navigation between Paris and the North Sea. The expense is estimated at 2,250,000 francs. ——The municipality of Nîmes (Gard) has just opened a competition for a civil and military hospital.——The municipality of Carcassone has just opened a competition to build a large iron hall in this town, at the *rond point* of the Porte de Toulouse.—— The jury appointed to judge the competition for a large Savings Bank at Gaulhet (Tarn) has awarded the first prize to M. Melissent, architect, Paris. MM. Gautier and Guichard, architects, Paris, and MM. Génique and Montos, architects, Tours, have obtained the second prize.——In the square of the Hotel de Ville, at Argenteuil, a monument has just been erected in honour of the Republic. It is the work of M. Réne Carillon, sculptor, and M. Flammarion, architect.——The death is announced at the age of 38 of Edmond Picard, artist. He was a pupil of J. P. Laurens and of Rapin. He received a third medal in 1887, and a bronze medal at the international exhibition in 1889. He exhibited two pictures at the last Salon des Artistes Français, "Les Bergers" and a sea piece.——M. Théodore Justin Olivier, member of the Société Centrale des Architects, has just died at Montauban, where he held the post of Architect of the Department of the Tarn and Garonne, and Diocesan Architect. He was seventy-eight years old. He was a very learned archæologist, and was also the assistant of Viollet-le-Duc in his numerous works, especially for the restoration of the Cité de Carcassonne, and for the curious hotel de Ville of St. Antonin (Tarn et Garonne). We may also mention amongst his principal buildings the bishop's palace of Montauban, the Palais de Justice of Moissac, the church of St. Antonin, and the chapel of the Immaculate Conception at Montauriol. Several village churches were also built by him.

MISCELLANEOUS.

Professional and Business Announcements. —Messrs. Messenger & Co., Limited, hot-water engineers, &c., of Loughborough, have removed their London office from No. 96A to No. 122, Victoria-street, Westminster.

The Institute of Sanitary Engineers (Incorporated).—At a meeting of the Election Committee, held on the 4th inst., the following new members were elected, viz.:—Members: D. K. McPherson, Greenock; T. E. Fellowes, Wolverhampton. Associates: J. E. Jones, Conway; J. E. Miller, Hull; R. E. Williams, Bletchingley.

Grimsby Electric Lighting Works.—Alderman G. S. Dobson, J.P., as Chairman of the Corporation Lighting Committee, laid the foundation stone on the 5th inst. of the new electric lighting works which are being undertaken at Grimsby, at a cost of about 45,000*l.* Professor Kennedy is the consulting engineer.

New Books.—The following works will shortly be published:—The first volume (upon meteorology), with 400 maps, of the new "Physical Geography," edited by Mr. J. G. Bartholomew; "Scottish Market Crosses," with 108 full-page plates, by Mr. John W. Small, architect, F.S.A. Scotland, of Stirling; "A History of Eton College," by Mr. Lionel Cust, Director of the National Portrait Gallery; "The Destruction of Ancient Rome," by Signor Rodolfo Lanciani; Blake's "Songs of Innocence," with illustrations by Mr. C. Levetus; "In the Valley of the Rhone," by Mr. C. W. Wood; "Highways and Byways in Normandy," by Mr Percy Dearmer; "Highways and Byways in Yorkshire," by Mr. A. H. Norway (both illustrated); "The Life and Work of Peter Paul Rubens," by Emile Michel, translated from the French by Mr. E. Lee; "British Contemporary Artists: Seven Studies," by Mr. Cosmo Monkhouse; "Some Principles of Roman Art and their Application in Early Christian Paintings," by F. Wickhoff, translated and edited by Mrs. S. A. Strong; and "The Walls of Constantinople," By Mr. Alexander Van Millingen, with chapters upon the Theodosian Walls, the Palace of the Porphyrogenitus, and the Inmates of the Prison of Anemas. ——"The Book of Sundials," by H. K. F. Eden and E. Lloyd; "Line and Form," by Walter Crane; "Anatomical Diagrams for Art Students," by J. M. Dunlop; "A Guide to Constantinople," by D. Contopoulos; "The Cinque Ports," by F. M. Hueffer; "Balmerino and its Abbey," by James Campbell; "Picturesque Yorkshire," by J. S. Fletcher; "Assisi," by D. Gordon ("Mediæval Towns" Series); "Beatrice d'Este, a Study of the Renaissance," by H. Ady; and "Historical Churches of Paris," by W. Lonergan.

Public Improvements, Cromer.—On the 3rd inst., at the Town Hall, Cromer, Mr. Charles Perrin, an inspector of the Local Government Board, held an inquiry into the application of the Urban District Council for sanction to borrow 3,000*l.* for works of sewerage and sewage disposal, and 4,000*l.* for purchase of the Fountain House property, and the erection thereon of Council offices, a fire station, and public conveniences. Taking first the sewer outfall loan of 3,000*l.*, Mr. J. K. Frost, the Clerk to the Council, stated that 2,500*l.* was for the construction of septic tanks and the necessary alteration of sewers in connexion therewith, and 500*l.* for an additional sewer from the Overstrand-road to the gangway. Mr. J. Cummins (Messrs. Cameron, Cummins, & Martin, Exeter) described the plans. Mr. A. F. Scott, Surveyor to the Council, explained the plans of the proposed new Council offices, fire station, and public conveniences.

Electric Lighting, &c., Salford.—Mr. G. W. Willcocks, an Inspector of the Local Government Board, held an inquiry at the Salford Town Hall, on the 6th inst., into the application of the Corporation for sanction to borrow the sum of 10,500*l.* for the purpose of electric lighting, and 850*l.* towards the cost of improvement in Bank-lane, Irlams-o'-th'-Height. Mr. L. C. Evans (acting Town Clerk) explained that the Corporation had decided to erect a new generating station in Strawberry-road, Pendleton. They had already received the sanction of the Local Government Board for power to borrow the money for the purchase of the land, the erection of certain walls, &c., and they now applied for sanction to borrow 5,500*l.* to erect the requisite offices, and also to provide accommodation in the basement of the offices for a battery sub-station, and 5,000*l.* for the purchase of meters, &c. The Inspector eventually agreed to the application being amended to 6,250*l.*, subject to the approval of the Local Government Board. Mr. J. Corbett, the Borough Engineer, explained the scheme with reference to the application to borrow the sum of 850*l.* The road would provide thoroughfare from Irlams-o'-th'-Height to Broughton and Kersal, and it would also be a means of access to the new cemetery, which the Corporation were going to lay out at Agecroft.

Electric Light, Port Talbot.—Mr. H. Percy Boulnois, Local Government Board Inspector, recently held an inquiry into the application of the Margam Urban District Coucil for power to borrow 6,500*l.* for the purpose of laying down an electric light plant. The scheme is one prepared by Mr. Walter Hosegood, Mechanical Engineer to the Port Talbot and Docks Company, and although the application was for 6,500*l.* it was stated that the Council had since come to the conclusion to increase that figure by 500*l.*, making a total sum of 7,000*l.* so as to provide for three sets of plant.

Free Labour Congress.—The seventh annual congress of the National Free Labour Association has been held in the Memorial Hall, Farringdon-street, this week. The delegates from different parts of the country were welcomed by Mr. J. W. Groom (West Ham), a member of the Executive Council, on whose motion Mr. John Chandler (London) was re-elected general President. The seventh annual Report of the Executive Council of the Association was submitted. It stated that during the past year the Association had been appealed to in the case of twenty-six strikes and disputes, in all of which the differences had been successfully arranged by the only method the Association recognised as businesslike and economically sound—that of the law of supply and demand in the labour market. On that equitable basis employment had been found during the year for 5,769 workmen willing to accept the current rate of wages with which others were dissatisfied. The total registered membership of the Association was now 253,501. The Report having been agreed to, the President delivered his opening address, and subsequently Mr. Ritson moved:—"That this conference, representing 250,000 registered free-labour workmen, having been eye-witnesses of many acts of violence and intimidation during recent labour conflicts, most earnestly and emphatically places on record its firm conviction that the time has arrived, in the interest of freedom and the maintenance of our national trade, for an alteration of the Conspiracy and Protection to Property Act, 1875, and believes the necessary relief would follow the repeal of Clause 2, Section 7, of that Act, such clause being erroneously held to justify coercive picketing, and is taken as an excuse for openly resorting to industrial intimidation." A delegate seconded the resolution, which was adopted. Mr. G. Francis moved:—"That in view of the manifest bias and partiality which invariably characterise the reports presented to the Labour Department of the Board of Trade by its trades-union correspondents, this congress, on behalf of the overwhelming preponderance of non-union labour throughout the country, again most earnestly presses that a representative of free labour should be added to the Labour Department, so as to inspire confidence among non-union workmen and the great employing interests of the country." Mr. W. Collison (secretary of the Association) seconded the motion, which was adopted. A further resolution, "strongly condemning the unscrupulous and persistent attempts made by trade-unionists to prevent non-union workmen from following their employment," was also carried, and the congress adjourned.—The following day, Mr. Kenny (Oldham), at the close of a speech in which he referred to the tyrannical action of trades-unions, moved:—"That this congress desires to call the attention of engineering employers of labour to the fact that, notwithstanding the strike settlement of 1898, non-union workmen are systematically boycotted and interfered with, to their own discomfort and to the detriment of labour, by trades-union workmen, and that, with an evident object, this in many cases covertly or openly encouraged by foremen, who were out on strike but have been reinstated, and are otherwise in connexion with trades-unions." Mr. Farr (Newcastle-on-Tyne) seconded the resolution, which was agreed to. Mr. Ritson (Manchester) moved the next resolution as follows:—"That this congress strongly condemns the growing system of trading adopted by some of our municipalities, believing it to be based on an economic fallacy, which places unfairly in the hands of public bodies the power to interfere with individual enterprise—a power which experience has amply proved to have been exercised to the detriment of the individual trader, and in antagonism to the best interests of the community." Mr. Raymond (Manchester) having seconded the resolution, Mr. Ellis (Newcastle-on-Tyne) remarked that private traders could build better and cheaper houses than the London County Council. The resolution was agreed to with acclamation. Other business having been transacted, the congress rose.

The London Sketch Club.—The private view of the third exhibition of sketches by members of the London Sketch Club will be held on Thursday, 19th inst. at the Modern Gallery, 175, Bond-street, W., and the exhibition will be open to the public from the 20th to the 28th inst. inclusive.

Magazines and Reviews.—We are compelled to defer till next week our usual notice of topics of artistic or constructional interest in the monthly magazines.

CAPITAL AND LABOUR.

The Hull Building Dispute.—A special meeting of the members of the Amalgamated Society of Carpenters and Joiners was held at the St. George's Hall, Story-street, on the 3rd inst., for the purpose of considering the proposals for the settlement of the existing dispute. The proposals, which were submitted by the Hull Master Builders' Association at a recent conference with the operatives' delegates, run as follow:—1. That all men return to work on the old rules. 2. That a Joint Board of Conciliation be formed, consisting of an equal number of employers and employed, and that any difficulties, both present and future, shall be dealt with by such Board prior to any stoppage of work. The Board to be called together within forty-eight hours of the dispute occurring. The meeting was largely attended, and the proceedings, which were conducted in camera, were of a protracted character. Great exception was taken to the suggestion, as implied by the masters' proposals, that the present dispute should be referred to the Board of Conciliation. The men were firm on the point that they would only return to work on the understanding that the fact of them doing so put a complete end to the dispute in which they have now been engaged for practically six months. They, therefore, unanimously resolved to delete the words "both present and" from the second clause, and to make it read "and that any future difficulties shall be dealt with by such Board," instead of "and that any difficulties, both present and future," &c. Following the example of the joiners, the bricklayers and bricklayers' labourers have resolved to accept the master builders' terms of settlement on one condition, viz., that the words authorising the proposed Board of Conciliation to deal with the present dispute be deleted from Clause 2 of the agreement. The position, therefore, so far as the operatives are concerned, is unchanged. They will not return to work unless the employers consent to end the dispute by reverting to the *status quo ante bellum*. Their determination not to work with imported non-

unionists is as great as it was twenty-four weeks ago. It is for the masters to decide whether they will forthwith accept the inevitable and so end the struggle, or whether they will wait more weary weeks before they surrender. Fortune has favoured the men throughout, as practically the whole of their members have been able to obtain employment, either out of the city or with non-federated employers, whilst those who have not been fortunate enough to do so have received strike pay on a liberal scale.—*Eastern Morning News.*

LEGAL.

BUILDING TRANSACTIONS AT KEIGHLEY.

ON the 4th inst., at the Keighley County-court, an award by Mr. J. B. Bailey, architect, Keighley, in an action between Smith & Whitaker, contractors, and William Ward, builder, arising out of certain building transactions, was filed, and judgment was entered for the plaintiffs. The case was originally entered in the High Court, but was remitted to the county-court, and referred to Mr. Bailey, by consent of the parties. Mr. Bailey found that 45*l.* 11s. 2d. was due from the defendant to the plaintiffs, and that 2*l.* 12s. 9d. was due from the latter to the former, leaving a balance owing to the plaintiffs of 42*l.* 18s. 5d. He directed that each party should bear his or their own costs of the reference, and that the plaintiffs should pay one-third and the defendant two-thirds of the costs of the award.

IMPORTANT BUILDING CASE IN THE VACATION COURT.

THE case of Leveson-Gower *v.* Sewell came before Mr. Justice Darling, sitting as Vacation judge, on the 11th inst.

Mr. Mulligan, Q.C., in opening the case, said that the object of the motion was to restrain the defendant from building on a building estate at Limpsfield, in Surrey, without his plans being approved by the plaintiff's architect. The estate was an extensive one, being some 7,000 acres in extent, and as was usual in such cases the plaintiff stipulated with persons building on the estate that the buildings should be according to his directions. He accordingly inserted in his contract with the defendant that the plans of his proposed building should be submitted for the approval of his architect. The covenant in question, as set out in the affidavit of the plaintiff, provided shortly that the defendant was to erect on his plot of land a messuage or dwelling-house and all necessary outhouses and buildings "according to the plans, elevations, and specifications to be submitted to the architect of the vendor." The covenant went on to provide that a copy of the same plans and elevations should be deposited with Mr. Stenning, or other the architect of the vendor for the time being, and that the defendant should spend about the buildings 1,000*l.* at least. What had happened was this: plans were submitted by the defendant's architect to Mr. Stenning, but this gentleman, thinking that such a building as was proposed to be erected would be injurious to the whole of the estate, refused to approve of them on behalf of the plaintiff. The defendant's architect wrote a letter in which he declined to modify the plans, saying that his reputation was at stake, and so forth, and he declined to make plans in accordance with the suggestions of Mr. Stenning. Mr. Stenning said that the house proposed to be erected would be an eyesore to the place, and would be an injury to the whole estate. The learned counsel said that Mr. Stenning was the sole judge in the matter under the terms of the covenant, and he should be prepared to submit, if necessary, that the building proposed to be erected would be a hideous structure.

His Lordship: I do not think I could go into that question. It is a matter of taste. I might prefer one style of architecture and the defendant's architect another.

Mr. Mulligan: Yes. Here there is a positive covenant, and defendant refuses to comply with it; and I ask, therefore, for the interlocutory injunction.

His Lordship: Do you say, Mr. Alexander (counsel for the defendant), that the buildings are not to be according to the approval of Mr. Stenning?

Mr. Alexander said that there were two grounds on which his defence was based. His first point was that the plaintiff himself had frustrated the performance of this covenant by the defendant by unreasonably withholding his consent to the plans. Even assuming that the covenant could be split into two parts, the plaintiff's right of approval of the plans must be exercised reasonably, and not capriciously or arbitrarily. His lordship would notice that, under the covenant, the defendant was not bound to spend more than 1,000*l.* about the building in question, and to say that the defendant was not to have a building with the elevation proposed would be, he should submit, an unreasonable disapproval of the plans by the plaintiff. As a matter of fact, the conduct of the plaintiff and his architect had been, he should contend, capricious and arbitrary, and their approval of the plans had been unreasonably withheld. The learned counsel said that his second point was that the plaintiff could not get an interlocutory injunction in this matter. On August 9, after the defendant had sent out his plans, and modified them as far as possible to meet the plaintiff's objections, the defendant gave the plaintiff notice that service of any process would be accepted. The plaintiff saw the defendant's building rise and rise until it had got up to the first floor and the elevation made, and then the plaintiff issued his writ on September 19.

His Lordship: Are there objections to the first or second floors or to the roof?

Mr. Alexander said that the plans of the house were not objected to, but the plaintiff objected to the elevation on the ground that it was not countrified enough.

His Lordship: What is countrified near London?

Mr. Alexander: They say that the building is too much of a suburban character. They say they want a handsome country house of a refined character.

His Lordship: Something like Haddon Hall? What does Mr. Stenning say?

Mr. Alexander: He says that the house we propose to erect is ugly and common, and would be injurious to the neighbourhood. The learned counsel said that the question of delay alone was quite sufficient to dispose of the interlocutory application.

In answer to his lordship, Mr. Mulligan said he should agree that under the terms of the covenant, if the plaintiff or his architect unreasonably withheld their consent to the plans, it would be improper. Mr. Stenning objected to the lantern on the top of the defendant's house as it was unnecessary for lighting the house and would be injurious to the other buildings on the estate.

His Lordship: Is your client very much attached to the lantern, Mr. Alexander?

Mr. Alexander: Yes, very much. The defendant has erected this building solely for the occupation of his family, and proposes to spend 3,200*l.* upon it. The learned counsel then contended, at great length, that Mr. Stenning's disapproval of the plans was not reasonable and that no interlocutory injunction ought to be granted.

After hearing Mr. Mulligan in reply, his Lordship, in giving judgment, said he could not come to the conclusion that Mr. Stenning had acted unreasonably in the matter. He was bound to say he could not see that Mr. Stenning had raised any unreasonable or vexatious objections. He did not mean to say that Mr. Stenning had the right to insist upon all his objections on discussion of them, but as the case now stood it was perfectly clear the defendant had not complied with the covenant, but, at his own risk, without Mr. Stenning's consent, had built up his house. If any inconvenience had been caused him through doing that, it was the result of his own action. Mr. Stenning must, of course, exercise his discretion in a reasonable manner; but his Lordship did not think he had acted unreasonably, and therefore the interlocutory information must be granted in the terms of the notice of motion, excluding the mandatory part, the costs to be costs in the action.

A BUILDING DISPUTE SETTLED.

THE case of Ward, Lock & Co., Limited, *v.* the Gas Light and Coke Company, Limited, again came before Mr. Justice Darling, sitting as Vacation judge, on the 11th inst., on an application by the plaintiffs for an interim injunction to restrain the defendants from raising or heightening the walls of their premises to the injury of the plaintiffs' premises.

When the case was reached counsel stated that it had been arranged that all further proceedings should be stayed on terms which it was not necessary to state, all the parties being *sui juris.*

His Lordship agreed to this course.

THE ALLEGED WRONGFUL HEIGHTENING OF WALLS.

THE case of Davidson & Son *v.* Cowen again came before Mr. Justice Darling, sitting as Vacation judge, on the 11th inst., on an application by the plaintiffs for an interim injunction to restrain the defendant until the trial from the alleged wrongful heightening of the walls of a building, to the detriment of the plaintiffs.

Upon the case being called on, Mr. Alexander, Q.C., stated that it had been agreed that the case should stand over generally, the defendant continuing the undertaking which he had given on a previous occasion, with liberty to either party to bring on the motion at any future time, on two days to the other side.

His Lordship assented to this.

MEETINGS.

FRIDAY, OCTOBER 13.

Glasgow and West of Scotland Technical College (Architectural Craftsmen's Society).—Professor Sexton on "Mild Steel." 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. H. R. Kenwood on "Infectious Diseases." 8 p.m.

Architectural Association Discussion Section.—The first meeting of the session. A debate, on "The Registration of Architects," will be opened by Messrs. G. A. T. Middleton and A. R. Jemmett. 7 p.m.

MONDAY, OCTOBER 16.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. H. R. Kenwood on "Methods of Disinfection." 8 p.m.

TUESDAY, OCTOBER 17.

The Architectural Association of Ireland.—Annual general meeting in the Grosvenor Hotel, when the President, Mr. G. P. Sheridan, will deliver an inaugural address. 8. p.m.

WEDNESDAY, OCTOBER 18.

Builders' Foremen and Clerks of Works' Institution.—Quarterly meeting of the members. 8 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection of Disinfecting Apparatus and Model Steam Laundry at St. John's Wharf, Fulham. 3.30 p.m.

THURSDAY, OCTOBER 19.

Carpenters' Hall, London Wall (Lectures on Sanitary Building Construction).—Professor Henry Robinson on "Sanitary Requirements." 7.30 p.m.

The Institute of Sanitary Engineers (Incorporated).—The ordinary monthly sessional meeting.—8 p.m.

FRIDAY, OCTOBER 20.

The Architectural Association.—Conversazione, to be held at King's Hall, Holborn Restaurant. 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. Joseph Priestley on "Ventilation, Warming, and Lighting." 8 p.m.

Institution of Junior Engineers.—Annual general meeting at the Westminster Palace Hotel. Election of officers for nineteenth session, Council's report, &c. 8 p.m.

SATURDAY, OCTOBER 21.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Southwark and Vauxhall Waterworks, Hampton. 3 p.m.

RECENT PATENTS:

ACCEPTED SPECIFICATIONS.

Open to Opposition until December 4.

[1898] 14,194, Preble, Lathes or Machines for Turning or Shaping Wood, &c. 16,001, McNamee, Sanitary Appliances for Water Closets, Dry Closets, Dustbins, &c. 20,349, Rendall & Ackerman, Machine for Weaving Rectangularly-Meshed Netting. 21,001, Sturm, 21,001, Furnaces and Drying Apparatuses having a Movable Bed for Ceramic and other products. 2,114, Barclay, Windows. 21,174, Eastmead, Hydraulic Lifts and Cranes. 21,289, Wright, Water Heating and Purifying Apparatus. 21,777, Baker, Apparatus for Softening and Clarifying Water. 22,020, Slocum, Manufacture of Gas. 22,141, Thomson, Waterproof Compositions for use in Making Roofing Felts, Panels, Linings, &c. 22,415, Liebscher, Spraying Devices for Paints, &c. 22,682, Darling, Handles for Hammers, &c. 22,866, Little, Elevators. 23,508, Potter, Fireproof Buildings. 23,561, Rounsivell, Portable Lift of Loading Platform. 23,658, Deane, Portable Cabinets for Hot-air and Vapour Baths. 23,740, Tapp, Seats for Out-door Use. 23,860, Mason, Reversible Windows. 24,629-30, Peck, Artificial Asphalt. 24,819, Dye, Leak Stoppers for Gas, Steam, and Water Tubing. 24,928, Austen, Brick-making Machines. 24,932, Nevin & Burfield, Compositions for Distempering or Painting. 24,944, Wildman, Locking of Wheels of Trucks, &c. 25,277, Nicolini, Water Gas. 27 369, Ovenden, Step Ladders. [1899] 159, Wade, Domestic Fire Ranges or Heaters. 1,752, Payne, Hot-water Heating Apparatus. 1,861, C. W. Bolte N., Air or Vapour Bath Apparatus. 1,901, Gnöth, Roofing Tile; see also 17,278. 1,922, Heathman, Fastenings for Telescopical Ladders. 2,220, Gothan, Determining the Orientation of Strata in Bore Holes. 2,227, Van Praag & Harker, Acetylene Generating Apparatus and Lamps; see also 10,862. 2,829, Doulton, Fittings for Lavatories, Sinks, &c. 9,658, Smith, Apparatus for Use as a Liquid Meter, Rotary Motor, Pump, &c. 9,748, Arklay & Collier, Guard for Machines with Revolving Cylinders. 10,196, Hussey, Attachments for Painters' Lamps, &c. 10,263, Glover, Covers for Dust, Ash, and Town Refuse Vans. 1,862, Saule, and 14,240, Quelle, Acetylene Gas. 13,238, Dime, Fire-proofing Composition. 13,920, Siemens & Halske A.-G., Couplings for Glow-Lamps, &c., which cannot be interchanged. 14,277, Composite Veneering Company, Decorative Coverings for Walls and Other Surfaces. 15,436, Bedell & Welsby, Ballcock for Water Cisterns. 15,589, Gunning, Sink Traps. 16,126, Rolfe, Brick-making Machines. 16,274, Kohns, Wood-Turning Lathe. 16,372, Warner & Mayer, Jointed Truck. 16,618, Knapp & Steilberg, Compressed Gas. 16,992, Arnold, Adjustable Axle Bearings for Band Saws. 17,278, Feigenspan & Mangner, Tiles for Roofs. 17,475, Blake, Disinfecting and Deodorising Device. 17,561, Wharldall, Ladders.

ABSTRACTS OF PATENTED INVENTIONS.

12,852.—EARTHENWARE PIPES, TILES, SLABS, CONDUITS FOR CONDUCTORS, &C.: *W. Vanden Berg & T. Haas.*—After they have been dried or moderately burned, the made articles are treated with melted asphalte or pitch, to which gum, oil, fat, or resin may be added. It is claimed that the composition renders the pipes, &c., impervious to water, resists the action of acids and the growth of germs, and gives a reduced conductivity for electricity, heat, and sound.

12,872.—WATER-WASTE PREVENTERS: *M. J. Adams.* The inventor places one tank above another, the upper tank discharging by either a valve or a siphon into a tipping tank within the lower tank, so that when the tank tips the flush is effected.

12,893.—LOW-TENSION CIRCUITS AND THEIR CONNEXIONS.—*L. J. Steele.*—The device, being an improvement upon No. 25,344, of 1894, is for connecting a low-tension circuit—say, the circuits in transformer distribution—to safety or to earth in the event of the current becoming excessive; a latch is held by a looped fuze wire, passing around a cylinder attached to the latch which holds a contact-arm (connected to earth) away from a contact upon the circuit to be protected against the action of a spring; a thin strip of insulating material, with gaps, being placed

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Tenders for Works, &c.	Morecambe Tower Co.	W. H. & A. Sugden, Cavendish-st. Keighley	Oct. 16
Workhouse Fittings, &c. Gosport	Alverstoke Union	H. F. A. Smith, Archt. Star-chmbrs, Gosport	Oct. 17
Workhouse Mortuary, &c.	Belfast Union	Young & Mackenzie, Archt. Donegall-square East, Belfast	do.
*Construction of Paved Footpath	Chiswick U.D.C.	A. Ramsden, Vestry Hall, Chiswick	Oct. 18
Steel Rails, &c.	East Indian Ry. Co.	A. P. Dunstan, Co.'s Offices, Nicholas-lane, E.C.	do.
Steel, Sleepers, &c.	Bombay, Baroda, and Central India Ry. Co.	T. W. Wood, Gloucester House, Bishopsgate-st. Without, E.C.	do.
Engineering Plant	Poplar Union	I. W. Stevens, Engr. 34, Victoria-st. S.W.	do.
Steel Rails, Christiania	Norwegian State Ry.	Foreign Office, Whitehall, S.W.	do.
Granite Road Metal	Watford U.D.C.	H. M. Turner, 14, High-st. Watford	do.
Shop and Warehouse, &c. Woodford Halse	Banbury Co-op. Soc.	Secretary, Broad-street, Banbury	do.
Pier Extension, Innellan, N.B.	.....	D. & C. Stevenson, C.E. 84, George-st. Edinburgh	Oct. 19
*Erection of Public Reading Room	Willesden C.C.	Done, Hunter & Co. Archt. Cricklewood, N.W.	Oct. 20
*Erection of Superstructure of New Offices for Prudential Assurance Co. Ltd.	Prudential Assurance Co. Ltd.	A. Waterhouse & Son, 20, New Cavendish-st. W.	do.
Additions to School, St. Bernard's	Edinburgh Sch. Bd.	R. Wilson, Archt. 3, Queen-st. Edinburgh	do.
Board Room at Workhouse	Beverley Union	Botterill, Son, & Bilson, Archt. 23, Parliament-st. Hull	do.
Police Cottages Farnborough	Hants C.C.	W. J. Taylor, County Surv. The Castle, Winchester	Oct. 21
Gravel Road Metal	Bishop's Stortford U.D.C.	W. Gee, North-street, Bishop's Stortford	do.
School, Belgrave-road	Bingley (Yorks) Sch. Bd.	W. R. Nunns, Archt. Market-st. Bingley	Oct. 23
*Erection of Free Library, &c.	Boro. of Royal Leamington Spa	J. M. Bottomley, 13, Bond-st. Leeds	do.
*Erection of Isolation Wards, &c.	Romford Joint Hosp. Bd.	Mr. Whitmore, Archt. 17, Duke-st. Chelmsford	Oct. 24
Refuse Destructor	Gloucester Corp.	R. Hammond, C.E. 64, Victoria-st. S.W.	do.
Steel Tramway Rails	Belfast Corp.	J. C. Bretland, C.E. Town Hall	do.
*Works of Sewering, &c.	U.D.C. of Bromley	Surv. Council Offices, Bromley, Kent	do.
*Kerbing, Tarpaving, &c. of Holdenby-road, Brockley	Lewisham B. of W.	Surv. Lewisham Town Hall, Catford, S.E.	do.
*Kerbing, Tarpaving, &c. of Hazeldon-road, Brockley	do.	do.	do.
*Kerbing, Tarpaving, &c. of Lalehham-road, Catford	do.	do.	do.
*Erection of New Out Offices at Samuel-rd. Schools	Walthamstow Sch. Bd.	W. A. Longmore, Bri ge-chambers, Hue-street, Walthamstow	do.
*Making-up and Paving Querrin-street	Vestry of Fulham	C. Botterill, Town Hall, Walham Green, S.W.	Oct. 25
*Erection of New Buildings, &c.	City of Canterbury	W. J. Jennings, Archt Canterbury	Oct. 26
*Constructing Sewers	Wilmslow U.D.C.	J. Bowden, 14, Ridgefield Manchester	do.
*Supply of Slop Carts	Wood Green U.D.C.	Surveyor, Town Hall, Wood Green	Oct. 27
*Retaining Walls and Foundations for New War Office, Whitehall	H. M. Office of Works	Sir John Taylor, H.M. Office of Works, Storey's Gate, S.W.	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Erection of Public Offices, &c.	Warblington U.D.C.	F. Swinburne, West-st. Emsworth	Oct. 28
*Putting-down a Bore Tube and Lining same, &c.	Chipping Campden R.D.C.	N. Lalley, 16, Gt. George-st. Westminster	Oct. 31
*Erection of Higher Grade Board School	Brading Sch. Bd.	J. Newman, Thornton, Sandown	do.
*Erection of Schools	Fletton R. Sch. Bd.	W. Boyer, 10A, Cowgate, Peterborough	do.
*Alterations and Additions to Workhouse at Alresford	Alresford Union	Board Room, Union Work house, Alresford	Nov. 2
*Construction of Underground Lavatory	Boro. of Deal	T. C. Golder, 23, Queen-st. Deal	do.
*Erection of New Coastguard Buildings at Padstow	Works Dept. Admiralty	Work's Dept. Admiralty, 21, Northumberland-av. W.C.	Nov. 3
*Erection of New Coastguard Buildings at Banff	do.	do.	do.
*Erection of New Female Staff Home, &c.	St. George's Union	E. T. Hall, 57, Moorgate-st. E.C.	Nov. 7
*Erection of Girls' Dept. and New Assembly Hall	Enfield Sch. Bd.	G. E. T. Laurence, 181, Queen Victoria-st. E.C.	do.
*Construction of Sewers, &c.	Morecambe U.D.C.	Beesley, Son, & Nicholls, 11, Victoria-st. S.W.	Nov. 15
Aqueduct	Panama Authorities	Foreign Office, Whitehall, S.W.	Dec. 30
Electric Lighting	Porto Alegre Municipality	Foreign Office, Whitehall S.W.	Dec. 31
Drainage and Waterworks, Concepcion	Chilian Govt.	Foreign Office, Whitehall, S.W.	Jan. 3
Six Houses, Ambler-st. Castleford	.....	Garside & Pennington, Archt. Central-chmbers, Castleford	No date
Sixty Houses, Clowne, Derbyshire	.....	F. Cook, Archt. 22, Leeming-st. Mansfield	do.
Additions to Institute, Earl's Barton, Northants	Working Men's Club	Mosley & Anderson, Archt. Fish-st. Northampton	do.
Additions to Stables	Gorton (Lancs.) U.D.C.	Surveyor, Council Offices, Hyde-rd. Gorton	do.
Engineer's Shops, &c. Great Yarmouth	.....	Crabtree & Co. Engr. Great Yarmouth	do.
Alterations of Premises, All Saint's road, Bradford	.....	G. C. Ross, Archt. Morley-st. Bradford	do.
Bank, County-square, Ulverston	.....	Settle & Farmer, Archt. Ulverston	do.
Main Sewer, Dartford, Kent	.....	C. E. Vaughan, Archt 11, Adam-st. Adelphi, W.C.	do.
Additions to National Schools, Abergavenny	.....	E. A. Johnson, Archt. Abergavenny	do.
Alterations to Albion Hotel, Barrow	H. Spencer & Co. Ltd	E. M. Young, Archt. 90, Duke-st. Barrow	do.
*Supply of New Cooking and Heating Apparatus, &c.	Stepney Union	Workhouse, Salmon-lane Ratcliff, E.	do.
*Tarpaving, &c.	Tottenham Sch. Bd.	G. E. S. Laurence, 181, Queen Victoria-st. E.C.	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in.
*Clerk of Works	Wigan Technical College	.....	Oct. 21
*Temporary Architectural Assistant	Camberwell Vestry	4l. per week	do.
*Junior Assistant	nty. Boro. of Sunderland	2l. per week	Oct. 24

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p. —.* *Contracts, pp. iv. vi. viii. x. & xxi.* *Public Appointments, pp. xix. & xxi.*

between the cylinder and the wire; on an excess of current, sparking ensues through the gaps, and the wire yields, so the latch is freed and contact is made.

12,902.—Plaster or Cement: *J. Goodwin.*—The composition, especially devised for covering the roofs of walls of buildings in tropical countries, is made of china clay, ground clay, fossil meal, blue lias lime, asbestos, and flax or other fibre, and is described as being both waterproof and fire-proof.

12,933.—Spigot and Socket Jointing: *G. Bohn.*—In order that the jointing material may not be squeezed out and that a true invert may be obtained, the socket is formed with a fillet which extends about half-way around the pipe.

12,947.—Window Blinds: *J. McCammon.*—A plain bearing and a V-shaped recess or projection are arranged upon the bracket, and a corresponding plain bearing, with V-shaped recesses or projections are formed upon the roller, when the blind is pulled up the tension of the single cord causes the bearing of the roller to run upon the bearing of the bracket, whilst the projections and recesses are disengaged, when the cord is released the bearing on the roller runs down the bearing on the bracket until the V-shaped parts engage and induce friction enough for retaining the blind in its place.

12,967.—Ball and Float Valves: *Kurfu Metal Syndicate & J. P. Fullerton.*—Upon the float lever of the supply valve of a flushing or other cistern is fitted a projection which shall always engage the lowest point of a hard rubber ball, a hook at the end of the lever limiting its motion downwards, the water turns the valve and prevents it from always presenting the same surface to its seating.

12,996.—Pipe Joints, Junctions, &c.: *E. A. Green.*—For joints the pipe's spigot end is struck to a spherical curve, and the socket is shaped to correspond; for drain-pipe junctions, a side-inlet is formed in a length of the main drain, and an extension-piece is inserted between the bend and the inlet; a trap may be made by curving the branch and making a weir between it and the drain; a gulley trap is formed by means of a dip-plate having an inspection-opening closed by two plates fastened in their places with clay.

13,037.—Incandescent Lamps: *Spiral Globe, Limited, & B. C. E. Parker.*—A glass rod light-refracting coil for a bulb is made by winding the rod upon a former and putting the coil inside a cylinder, which is then contracted upon the coil by closing the cylinder and exhausting the contained air, or a blown bulb is cut into two halves that are placed over the coil and welded with a glass strip.

13,041.—Anti-Concussion Valves, &c.: *L. E. Cowey.*—To prevent hammering and concussion in valves that are opened by pressing a knob and closed by a spring or by the pressure of liquid, a piston attached to the valve-spindle moves in a dashpot, out of which (as the valve closes) the liquid leaks through a small orifice or around the piston; in another shape the knob is attached to the valve-spindle, instead of the use of a screw cap and a loose knob.

13,048-9.—Tools for Working Stone, &c.: *K. E. Ljungman & O. Undén.*—The grinding material of a grinding tool is made in blocks embedded in a metal holder, which wears away together with the grinding body; for a grinding roller the blocks may consist of straightened bars fitted into dovetailed recesses in the holder. Rollers, wheels, &c., are composed of clay and carborundum with, it may be, corundum or emery, pressed and moulded into shape and heated until the clay and heated until the clay or corundum or emery begin to fuse.

13,082.—Lift Valves: *J. Shaw.*—For tightly closing, a screw-down valve has a loose valve with convex faces; the upper face engages a convex disc of the spindle, recessed to admit the tapered valve stem; the lower face rests upon a hard metal seating, which has lugs to engage a key; when the valve is quite open, a tight joint with the nut is made by means of a loose washer upon the disc.

13,163.—Siphon Discharge: *E. H. Parkinson.*—In the top of a vessel floating in mercury is fixed a mercury cup, into which the siphon's air-pipe dips, means being taken to prevent splashing. The depression of the cup uncovers the end of the air-pipe, and on the escape of air the flush is started. The siphon is made preferably of a concentrical tube and stand-pipe, with a bell, made up likewise of two concentrical cylinders. The invention is an improvement of No. 18,121 of 1895.

13,203.—Separating or Spacing Bricks in Moulding Machines: *D. Workman.*—A board, moved by a lever, pushes the clay from the pug-mill on to a set of metal plates attached to a series of concentrical tubes that slide one within the other and are kept apart by a stepped cone upon a central rod; at the lever's return motion an endless belt and ratchet arrangement rotates a spindle carrying a lever and crank arms; bell-crank levers cause the central rod to slide lengthwise, and the cone is brought against the tube ends in succession, for separation of the plates, which are withdrawn from beneath the bricks by means of action of the crank arms on the spindle upon a sliding frame that supports the plates, tubes, and cone. The cut bricks, when the plates are taken away, are prevented from moving by a fixed bar; the pallet bearing the cut spaced bricks is removed by hand, a fresh pallet is placed, and the lever on the spindle returns the plates and cone to their former positions.

13,323.—Bricks: *D. Griffiths.*—Circular or other shaped holes are made crosswise or lengthwise through the bricks, and may be filled with cement or plaster, or the bricks may be arranged so that the holes shall form a continuous channel. A wall may be built of solid headers and perforated stretchers.

13,324.—Gulley Traps: *E. Ward & C. Toms.*—A hopper-shaped vessel passes the water to its outlet, which is trapped with a gutter, the sediment collecting in a surrounding vessel whose overflow passes away through another outlet. Flanges on the hopper prevent splashing and the escape of the sealing water when the hopper is laid aside to afford access to the trap, and around its rim is a V-shaped groove which fits a rim of the trap casing's upper edge.

13,387.—Generation of Acetylene Gas: *P. Lipcke.*—A valve, having two cavities, revolves in a ring upon the top-plate and passes carbide into the generator, when one of the cavities is registered to discharge its contents into the generator and is closed to the air by a plate, the other is open to the air and can be charged, a baffle plate being attached to the pipe which conducts the carbide; to obviate explosions acetylene gas is admitted through a bye-pipe level with the water-overflow pipe and expels all the air at starting through a cock at the top.

13,446-7.—Testing of Drains: *R. G. L. Burn* (13,446) *and R. G. L. Burn, J. D. Burn, & L. A. Burn* (13,447).—To facilitate the insertion of a stopper at a bend, two discs are drawn together so as to expand a rubber ring by means of the action of a nut upon the shaft, which is turned round by bevel wheels whereof one is mounted on a shaft set angle-wise. The other apparatus (13,447) provides for the insertion of drain plugs, a collar on the lower end of a rod holds a collapsible bag; a parallel and sliding rod is joined by a link to a lever whose lower end is pivotted to the former rod, when, by the lowering of the apparatus down the ventilating shaft, the bag is opposite the drain the sliding-rod is pushed down, and the lever, as it strikes against the shaft's opposite side, forces the bag into the drain wherein it can then be inflated.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 23.—By Bentley & Sons (at Pontefract).

Gowdall, Yorks.—Gowdall Lodge Farm, 250 a. 3 r. 20 p., f.	£7,000
Various enclosures, 33 a. 2 r. 32 p., f.	1,500
A freehold house and 1 a. 3 r. 36 p.	2,350

September 26.—By Horton Ledger (at Brighton).

Brighton.—Dyke-rd., Down View, f.	1,800

September 27.—By Bentley & Sons at Goole).

Reedness, Yorks.—Various enclosures, 28 a. 2 r. 2 p., f.	1,806
Swinefleet, Yorks.—A freehold messuage and 12 a.	780
A close of land, 7 a. 2 r., f.	515

By Shepherd & Son (at Rochdale).

Brown Wardle, Lancs.—Two farms, 35 a. 0 r. 24 p., f. and c.	1,650
Wardle, Lancs.—Two freehold houses	310
A freehold meadow, 9 a. 2 r. 5 p.	390
Ramsden-rd., f.g.r.'s 12l. 15s. 3d., reversions in 968 and 985 yrs.	357

By HUMBERT & FLINT (at Watford).
Watford, Herts.—St. Alban's-rd., &c., 107 plots of freehold building land (in lots) £6,000
By STAFFORD & ROGERS (at Newport Pagnell).
Newport Pagnell, Bucks.—Portfields Farm, 140 a. 2 r. 36 p., f. 3,550
Bow Brickhill, Bucks.—A freehold farm, 77 a. 1 r. 31 p. 1,500
Loughton, Bucks.—An enclosure of land, 6 a. 3 r. 21 p., f. 300
Shenley Brook End, Bucks.—Enclosures of land, 13 a. 3 r. 29 p., f. 505
Shenley Church End, Bucks.—Enclosures of land, 28 a. 3 r., f. 665
Various enclosures, 4 a. 1 r. 1 p., f. 358
September 28.—By J. M. PRATT (at Ottery St. Mary).
Ottery St. Mary, Devon.—A freehold holding, 39 a. 1 r. 26 p. 1,175
Various enclosures, 30 a. 1 r. 12 p., f. 1,010
By MORETON RICHES (at Clapham Junction).
Putney.—1, 2, and 3, West-pl., f. 700
5 to 11, Floss-st., u.t. 76 yrs., g.r. 33*l.* 10s. 995
Wandsworth.—551, York-rd., u.t. 79 yrs., g.r. 7*l.* 10s., r. 35*l.* 370
8, Allfarthing-la., u.t. 91 yrs., g.r. 9*l.*, r. 55*l.* .. 600
35, Cambourne-la., u.t. 84 yrs., g.r. 5*l.* 195
Battersea.—17, Severus-rd., u.t. 85 yrs., g.r. 8*l.* 8s. 380
By YOUNG & HOWES (at Bristol).
Doynton, &c., Glos.—The Bury Estate, 159 a. 2 r. 14 p., f. 4,700
September 29.—By WINDRUM & CLEAVE.
Plaistow.—19 and 21, Church-st., f. 500
Poplar.—79 and 81, Tetley-st., u.t. 42½ yrs., g.r. 5*l.* 67 to 73 (odd), Brabazon-st., u.t 63 yrs., g.r. 12*l.* 8s. 315
Canning Town.—8 to 16 (even), Carlton-st., f. 635
By HUSSEY & SON (at Exeter). 780
Upton Pyne, Devon.—Cowley Barton Farm, 133 a. 1 r. 35 p., f. 4,425
Two freehold cottages and 2 a. 3 r. 16 p. 630
Bradninch, &c., Devon.—Garlandhayes Estate, 175 a. 0 r. 9 p., f. 6,885
Whitestone, Devon.—Nadder Farmhouse and 4 a. 0 r. 33 p., f. 520
September 30.—By WINCH & SONS (at Hawkhurst).
Hawkhurst, Kent.—The Pixhall and Mopesden Estate. 245 a. 3 r. 16 p., f. 8,000
By SURRIDGE & SON (at Colchester).
Chappel, &c, Essex.—Broom House Farm, 105 a. 2 r. 34 p., f. 1,500
Two cottages and blacksmith's shop, f. 210
October 2.—By DENNANT & CO.
Lewisham.—26, 28, and 30, High-st., and "The Duke of Cambridge" b. h., adjoining, f., r. 40*l.* 1,670
20, 22, and 24, High-st., f., r. 76*l.* 1,360
2, Loampit-vale, f., r. 24*l.* 10s. 340
New Cross.—61, Lewisham High-rd., u.t. 45 yrs., g.r. 6*l.* 5s., r. 42*l.* 400
Greenwich.—69, Ashburnham-grove, u.t. 46 yrs., g.r. 4*l.*, r. 28*l.* 305
By W. B. WALKER.
Spitalfields.—1, Princelet-st, f. 1,440
By W. LUDLOW & BRISCOE (at Birmingham).
Knowle, Warwick.—The Manor House Estate, about 69 a., f. (in lots) 7,150
October 3.—By THURGOOD & MARTIN.
Southwark.—163, Tabard-st., u.t. 49 yrs., g.r. 6*l.* .. 215
Newington.—99 to 105 (odd), South-st., u.t. 61½ yrs., g.r. 17*l.* 105
Penge.—87, Oakfield-rd., f., e.r. 40*l.* 400
Wandsworth.—Huguenot-pl., Angleholme and Lawnswood, u.t. 86½ yrs., g.r. 19*l.*, e.r. 115*l.* .. 1,280
By WALTON & LEE.
Hawkhurst, Kent.—Fothersby House and 2 a. 1 r. 35 p., f. 650
An enclosure of land, 1 a. 0 r. 2 p., f. 155
The Moor Cottage, f., r. 12*l.* 185
By S. H. BAKER (at Masons' Hall Tavern).
New Cross.—Tanner's-hill, "The Royal George" p.-h., u.t. 40½ yrs., r. 100*l.*, with goodwill 2,100
By THOMAS WOODS (at Masons' Hall Tavern).
Richmond.—Kew-rd., "The Shaftesbury Arms" b.-h., u.t. 21 yrs., r. 60*l.*, with goodwill 600
October 4.—By F. J. BISLEY & SONS.
Rotherhithe.—104, Clarence-st., f. 225
By C. JOHNSON & CO.
Dulwich.—283 and 285, Friern-rd., f., r. 52*l.* 780
40, Thompson-rd., u.t. 85 yrs., g.r. 4*l.* 10s. 230
Peckham.—1 and 2A, Furley-st., u.t. 57 yrs., g.r. 6*l.* 10s. 450
Wandsworth.—75, Swaffield-rd; 3, Brocklebank-rd., and Albert Cottage adjoining, u.t. 89 yrs., g.r. 8*l.* 310
Camberwell.—1 to 20 and 23 to 31, Thompson-av., f. 8,650
Avenue-rd., Thompson's Mansions, f. 2,000
1 to 4, Addington-sq., and 1 and 2, Stanley Villas, u.t. 87 yrs., g.r. 105*l.* 925
11 to 19, Beresford-st., u.t. 11 yrs., g.r. 107*l.* 8s. 6d., r. 200*l.* 350
By F. JOLLY & CO.
Hackney.—333, Amhurst-rd., u.t. 67 yrs., g.r. 6*l.*, e.r. 50*l.* 450
Mile End.—146, Ben Jonson-rd., f. 350
14, Commodore-st., u.t. 71 yrs., g.r. 4*l.* 300
Stratford.—40, 42, and 44, Chatsworth-rd., u.t. 856 yrs., g.r. 8*l.* 4s. 440
Stepney.—62, Gold-st., f. 355
23, White Horse-st., f. 300
By PERKINS & CÆSAR.
Battersea.—9, 11, and 13, Kersley-st., u.t. 78 yrs., g.r. 21*l.*, r. 125*l.* 965
Barnes.—Lilian-st., &c., f.g.r. 20*l.*, reversion in 71 yrs. 510
By E. & A. SWAIN.
Shepherd's Bush.—142, Uxbridge-rd., area 12,700 ft., f. 2,120
By C. C. TAYLOR & SON.
Mile End.—97 and 99, Moody-st., u.t. 48 yrs., g.r. 7*l.* 450
By T. B. WESTACOTT.
Camden Town.—97, Camden-rd. and 22, Rochester-mews, u.t. 36 yrs., g.r. 6*l.*, r. 90*l.* 650
21 and 21A Little Randolph-st., u.t. 54 yrs., g.r. 14*l.*, r. 66*l.* 465
Marylebone.—68, Lisson-gr., u.t. 41½ yrs., g.r. 9*l.*, e.r. 70*l.* 550
St. Pancras.—53, Burton-cres., u.t. 63¾ yrs., g.r. 31*l.* 10s., e.r. 70*l.* £100
By DOUGLAS YOUNG & CO.
Pitsea, Essex.—The Rectory Cottage, f. 325
Main-rd., freehold meadow land, 9 a. 1 r. 240
Billericay, Essex.—Main-rd., a building site 100
October 5.—By EASTMAN BROS.
Forest Hill.—3, Mayow-rd., u.t. 63½ yrs., g.r. 12*l.*, e.r. 60*l.* 300
Sydenham.—67, Venner-rd., u.t. 80 yrs., g.r. 7*l.*, r. 36*l.* 250
By NEWBON, EDWARDS, & SHEPHARD.
Canonbury.—9, Ferntower-rd., u.t. 50 yrs., g.r. 6*l.* 6s., r. 42*l.* 485
Hoxton.—25, Gopsall-st., u.t. 37 yrs., g.r. 5*l.* 10s., r. 32*l.* 340
City-rd.—36, Westmoreland-pl., f., r. 28*l.* 470
Highbury.—97, Highbury-quadrant, u.t. 50 yrs., g.r. 15*l.* 15s., e.r. 70*l.* 520
12, Hamilton-rd., u.t. 48 yrs., g.r. 7*l.* 7s., e.r. 42*l.* 400
Wood Green.—Pellatt-grove, Rutland Villa and Napier Villa, u.t. 68 yrs., g.r. 10*l.* 410
By REYNOLDS & EASON.
Hendon.—1 and 3, Belle Vue-rd., u.t. 79½ yrs., g.r. 8*l.* 250
Mile End.—120 and 122, Buxton-st.; also 5 and 6, Buttress-st., u.t. 63 yrs., g.r. 21*l.* 765
By W. R. NICHOLAS & CO.
Chartridge, Bucks.—Enclosures of land, 70 a. 3 r. 29 p., f. 990
Great Missenden, Bucks.—Enclosure of grass land, 6 a. 3 r. 27 p., f. 120
A freehold farmhouse and 27 a. 1 r. 4 p. 700
October 6.—By J. HIBBARD & SONS.
Tottenham.—1 and 2, Cornwall-rd., u.t. 55 yrs., g.r. 2*l.* 10s. 280
110 and 112, Templeton-rd., u.t. 77 yrs., g.r. 7*l.* 215
By GRAVES & SON.
Westbourne Pk.—10 and 12, St. Luke's-rd., u.t. 57 yrs., g.r. 20*l.*, r. 107*l.* 10s. 805
2, Aston-rd., u.t. 65 yrs., g.r. 10*l.*, r. 45*l.* 325
21 and 22, St. Luke's-mews, u.t. 64 yrs., g.r. 10*l.* 310
13 and 14, Richmond-mews, u.t. 53 yrs., g.r. 12*l.* 245

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS:

WOOD.*

Per Petersburg standard hundred.

	£ s. d.	£ s. d.
White Sea: first yellow deals	17 15 0	18 15 0
Second do.	14 0 0	15 10 0
Third do.	12 5 0	13 10 0
Battens, 40s., 30s., and 15s. less respectively.		
Petersburg: first yellow deals	14 10 0	17 0 0
Second do.	11 10 0	13 0 0
Battens, 30s. and 20s. less respectively.		
Petersburg, white deals	10 10 0	12 10 0
Do. white battens	9 5 0	10 15 0
Riga, white deals	9 0 0	10 0 0
Swedish mixed yellow deals	14 0 0	17 10 0
Third do.	13 0 0	15 10 0
Fourth do.	11 10 0	12 10 0
Fifth do.	10 10 0	11 10 0
Battens, 30s., 20s., and 10s. less respectively.		
Whitewood, 10 to 20 per cent. less.		
Finnish unsorted yellow deals	10 10 0	11 0 0
Battens, 10s. and 5s. less respectively.		
Whitewood, 5 to 10 per cent. less.		
Norwegian second yellow battens	8 0 0	8 10 0
Third do.	7 10 0	8 0 0
Fourth do.	7 0 0	7 10 0
Whitewood, 10s. less.		
Danzig, Crown Deck deals, per 40 ft. 3 in.	0 15 0	1 5 0
Brack	0 12 0	1 0 0
St. Lawrence Pine deals, &c., per P.S.H.:—		
1st, Bright and Dry, regular sizes	20 5 0	26 15 0
" " oddments	13 5 0	20 0 0
2nd " regular sizes	15 5 0	18 10 0
" " oddments	10 15 0	14 5 0
3rd " regular sizes	9 5 0	10 15 0
" " oddments	7 15 0	8 15 0
4th " regular sizes	7 10 0	8 5 0
" " oddments	6 15 0	7 10 0
St. Lawrence Spruce deals, &c.		
First, regular sizes	9 5 0	11 5 0
Second "	8 0 0	9 0 0
Third "	7 15 0	8 10 0
Fourth "	6 15 0	7 10 0
Oddments and battens at 20s., 10s., 7s. 6d., and 5s. less respectively.		
New Brunswick Spruce deals, &c.	7 15 0	8 10 0
Oddments, battens, and fourths	7 0 0	8 0 0
United States pitch pine planks and boards	8 10 0	12 0 0
Prepared Boards, per square		
1¼ by 6½ and 7 in. 1st yellow	10 6	15 0
" " 2nd "	9 6	10 9
1 by 6½ and 7 in. 1st "	9 9	11 3
" " " white	7 6	9 9
" " 2nd yellow	7 6	9 9
" " " white	6 3	7 9
⅞ by 6½ & 7 in. 1st & 2nd yellow	7 6	8 6
" " " white	7 0	8 0
⅞ by 6½ and 7 in. 1st yellow and white (grooved, tongued, and beaded)	7 6	8 3
⅞ by 6½ and 7 in. 2nd yellow and white (ditto)	7 0	7 9

* The prices named are for the wood as imported and landed in the docks. Ten per cent., approximately, should be added in order to arrive at the current trade prices.

PRICES CURRENT—*continued.*

	£ s. d.	£ s. d.
⅞ by 6½ and 7 in. 1st yellow and white (ditto)	5 6	6 6
⅞ by 6½ and 7 in. 2nd yellow and white (ditto)	4 6	5 6
Narrower widths at 10 per cent. less. 3rd quality at 15 per cent. less than 2nd.		
Danzig and Memel Fir Timber— per load		
Best middling	3 5 0	3 10 0
Good middling and Second	2 15 0	3 5 0
Common middling	2 10 0	2 15 0
Undersized	2 10 0	3 0 0
Swedish and Norwegian Balks	2 10 0	2 15 0
Baltic Oak Timber—		
Danzig and Stettin—Large	3 0 0	4 0 0
Small	2 5 0	3 0 0
Quebec Timber per load		
Yellow Pine	5 5 0	7 0 0
Oak	4 7 6	6 5 0
Elm	4 17 6	5 10 0
Ash	4 0 0	5 0 0
Birch	2 15 0	4 12 6
New Brunswick, &c., Birch	2 5 0	2 17 6
American Pitch Pine Timber	3 10 0	3 15 0
Wainscot, per log, 18 cubic ft.—		
Crown (Eng. & Dutch) } nominal	4 2 6	5 15 0
Brack } nominal	3 7 6	4 7 6
Lathwood, per cubic fathom—		
Petersburg	4 0 0	6 10 0
Riga and Danzig	4 10 0	5 10 0
Norway Poles, per ft. run	0 0 1	0 0 1½
Oak Staves, per mille full size pipe		
Memel, Crown	210 0 0	220 0 0
Brack	180 0 0	190 0 0
Danzig	165 0 0	175 0 0
Bosnia, single Barrel (nominal)	98 0 0	30 0 0
United States, Pipe	35 0 0	42 10 0
Hogshead, extra heavy and double extra	27 10 0	32 10 0
Indian Teake per load	11 10 0	16 10 0
British Guiana Greenheart	0 0 0	8 0 0
Mahogany, per foot superficial—		
Honduras, cargo average	0 0 4½	0 0 6
Nicaragua, do.	0 0 4½	0 0 5½
Tabasco, do.	0 0 4	0 0 6½
Mexican, do.	0 0 3½	0 0 4
Panama, do.	0 0 3	0 0 4
African, do.	0 0 3½	0 0 5
Cuba, do.	0 0 5½	0 0 7½
St. Domingo, do.	0 0 5	0 0 7
Do. Curls (good to prime)	0 0 9	0 1 3
Walnut, American (logs)	0 2 3	0 4 6
Do. do. (planks and boards)	0 2 0	0 7 6
Italian, per foot superficial	0 0 3	0 0 7½
Black Sea, per ton	6 0 0	12 0 0
Satin Walnut (logs) per foot cube	0 1 0	0 1 3
" (planks and boards)	0 2 0	0 2 9
Sequoia (Californian redwood), per foot cube	0 1 9	0 2 0
Whitewood, American (logs)	0 1 3	0 1 6
" " (planks and boards)	0 1 6	0 2 9
Quartered oak " "	0 2 3	0 4 0
Kauri pine (logs)	0 1 9	0 2 0
" " (planks)	0 2 3	0 2 9
Jarrah (planks)	0 2 0	0 2 3
Lancewood spars each, fresh and large	0 5 0	0 8 0
Lancewood spars, ordinary to fair	0 4 0	0 5 0
Degame spars	0 8 0	0 10 6

METALS.

IRON—Pig, in Scotland ton	3 10 5	0 0 0
Bar, Welsh, in London	6 0 0	6 5 0
Do. do. at works in Wales	5 15 0	5 17 6
Do. Staffordshire, in London	6 5 0	7 10 0
COPPER—British cake and ingot	79 15 0	80 5 0
Best selected	81 5 0	81 15 0
Sheets, strong	85 0 0	86 0 0
Chili bars	76 2 6	0 0 0
YELLOW METAL lb.	6½d.	7¼d.
LEAD—Pig		
Spanish ton	16 15 0	0 0 0
English Com. Brands	17 0 0	0 0 0
Sheet, English, 6 lbs. per sq. ft. and upwards	18 0 0	0 0 0
Pipe	18 10 0	0 0 0
ZINC—English sheet ton	27 0 0	0 0 0
Vieille Montagne	28 0 0	0 0 0
Spelter	22 10 0	22 12 6
TIN—Straits	146 15 0	0 0 0
Australian	146 17 6	147 2 6
English Ingots	149 15 0	150 15 0
Banca	0 0 0	0 0 0
Billiton	0 0 0	0 0 0

OILS.

Linseed ton	22 10 0	0 0 0
Cocoanut, Cochin	29 10 0	0 0 0
Do. Ceylon	25 15 0	0 0 0
Palm, Lagos	27 0 0	0 0 0
Rapeseed, English, pale	25 0 0	0 0 0
Do. Brown	24 0 0	0 0 0
Cottonseed ref.	19 10 0	20 10 0
Oleine	17 5 0	19 0 0
Lubricating U.S.	0 7 0	0 0 0
Do. Black	0 6 3	0 8 0
TAR—Stockholm barrel	1 6 0	0 0 0
Archangel	1 0 0	0 0 0
Turpentine	37 5 0	37 7 6

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J. J. & M. (Amounts should have been stated).

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AYR.—For the execution of waterworks, Fairlie, for the Ayrshire County Council. Mr. P. Campbell Hart, C.E., Kilmarnock :—

Construction of Reservoir, Clear Water Tank, Pipe-laying, &c.

Craik & Tuckwell, Glasgow..... £3,621 4 11

Valves and Fittings.

Glenfield Company, Limited £118 14 11

Filtering Apparatus.

Reeves Patent Filters Company, London £260 0 0

Eight firms tendered, highest £4,684 2 2

BOTRIPHNIE (N.B.)—For the erection of Free Church Manse. Mr. R. B. Pratt, architect, County Bank House, Elgin :—

Masonry.—A. & W. Davidson Keith.	£241	10	0
Carpentering.—Archibald, Huntly ..	186	6	4
Plumbing.—Annam, Keith	82	17	6
Slating.—A. & R. Wright, Keith	32	11	0
Plastering.—Fotherlaw & Reid, Dufftown	49	14	9
Painting.—J. Symon, Dufftown	20	11	6
	£613	11	1

N.B.—Stabling, outhouses, walls, and railings, to form a separate contract.

BUCKIE (N.B.).—For the erection of stables, &c., Railway-terrace, for the Burgh Commissioners. Mr. Jas. A. Budge, Burgh Surveyor, Buckie :—

Masonry.

A. Milne	£118 7
A. Morrison	110 0
J. Dawson, Buckie*	96 12

Joinery.

A. Murray, Buckie*	55 16

Plumbing and Iron Roofing.

J. & T. Campbell, Buckie*	36 12

CLOUGHGLASS (Ireland).—For the erection of three cottages, Londonderry. Mr. R. Eccles Buchanan, architect, Londonderry :—

McKee & Sons	£720	Humphrey Campbell..	£525
Joseph Shannon.....	630	James A. Fulton, Fountain-street, Derry*..	480
Robert Colhoun	527		

CROYDON.—For the erection of schools for 1,220 children, with three central halls, and caretaker's house, Ecclesbourne-road, Thornton Heath, for the School Board. Mr. H. Carter Pegg, architect, Thornton Heath :—

Spencer, Santo & Co.	£18,578	Smith & Sons	£16,195
Falkner & Sons ..	17,833	Ross & Sons, Ltd...	16,130
Smett & Steel	17,172	Smith & Son, Croydon*.....	15,534
E. J. Saunders	17,000		

ERITH (Kent).—For the erection of school buildings, West-street, for Erith School Board, Erith, Kent. Mr. W. Egerton, architect, 12, Queen's-road, Erith. Quantities by architect :—

G. H. Gunning	£13,469	Martin, Wells & Co.	£11,695
Thomas & Edge ..	13,276	T. G. Sharpington	11,300
Enness Bros.	11,994		

HASTINGS. — For the erection of stabling, loose boxes, &c., Rock-a-Nore, for the Corporation. Mr. P. H. Palmer, C.E., Town Hall, Hastings :—

Tapner & Woodman, Hastings..... £1,368

LONDON.—For the erection of a warehouse, stables, &c., at Tyer's Gateway, Bermondsey, for Messrs. Forge & Hatton. Messrs. John M. Klenck & Co., surveyors, 64, Bishopsgate-street Within, E.C. :—

Lidstone & Sons	£2,661	John Greenwood....	£2,621
George Parker.....	2,649	Ashby Bros.*	2,506
F. & H. F. Higgs ..	2,636		

PEMBRIDGE (Herefordshire).—For the erection of girder bridge, Weston, for the Kington Rural District Council. Mr. Francis Exton, Surveyor, Council Offices, Kington :—

John Price	£239 10 0	John Watkins ..	£234 0 0
John Sanaford..	238 9 0	John Preece....	228 0 0
John Webb	236 13 6		

READING. — For the erection of synagogue and inister's house for the Reading Hebrew Congregation. Mr. Lewton, architect, 6, Forbury, Reading. Quantities by Messrs. H. Cooper & Sons, Reading :—

W. Stokes....	£3,843 11 9	G. Tucker....	£3,747 0 0
McCarthy Fitt	3,769 0 0	F. Newberry..	3,412 17 6
W. Hawkins..	3,760 0 0	G. Dixon (late)	3,033 0 0
R. Curtis	3,750 0 0	[All of Reading.]	

SKIBO (N.B.).—For the execution of embankment works, bridges, &c., for Mr. A. Carnegie. Mr. Manners, C.E., 12, Lombard-street, Inverness :—

Matheson & Co.....	£22,147 18 6	A. Pirie	£13,202 5 6
Chisholm & Co.....	15,222 13 0	C. Mackay..	13,201 14 9
T. Peattie ..	14,403 17 7	G. Simpson..	12,967 1 6
J. Ross.....	14,204 2 0	A. Cameron..	12,638 14 8
W. Macpherson.....	13,643 10 8	T. Macdonald	12,567 0 2
J. Ross.....	13,288 10 0	R. Fraser, Inverness* ..	11,263 3 2
		Brebner & Co.	9,156 17 7

SLIGO.—For alterations, &c., to chapel and residence at workhouse, for the guardians. Mr. W. F. Gilchrist, C.E., Wine-street, Sligo :—

Charles Conolly* .... £275 | George Kerr, Sligo.... £237

TONYPANDY (Wales).—For the erection of business premises, adjoining the Town Hall, for Mr. E. Jenkins. Messrs. Griffiths & Jones, architects, Tonypandy and Llandaff :—

Rowlands & Lloyd ...	£875	H. Rowling	£790
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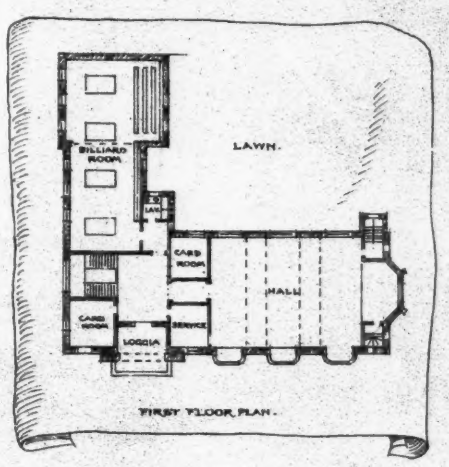

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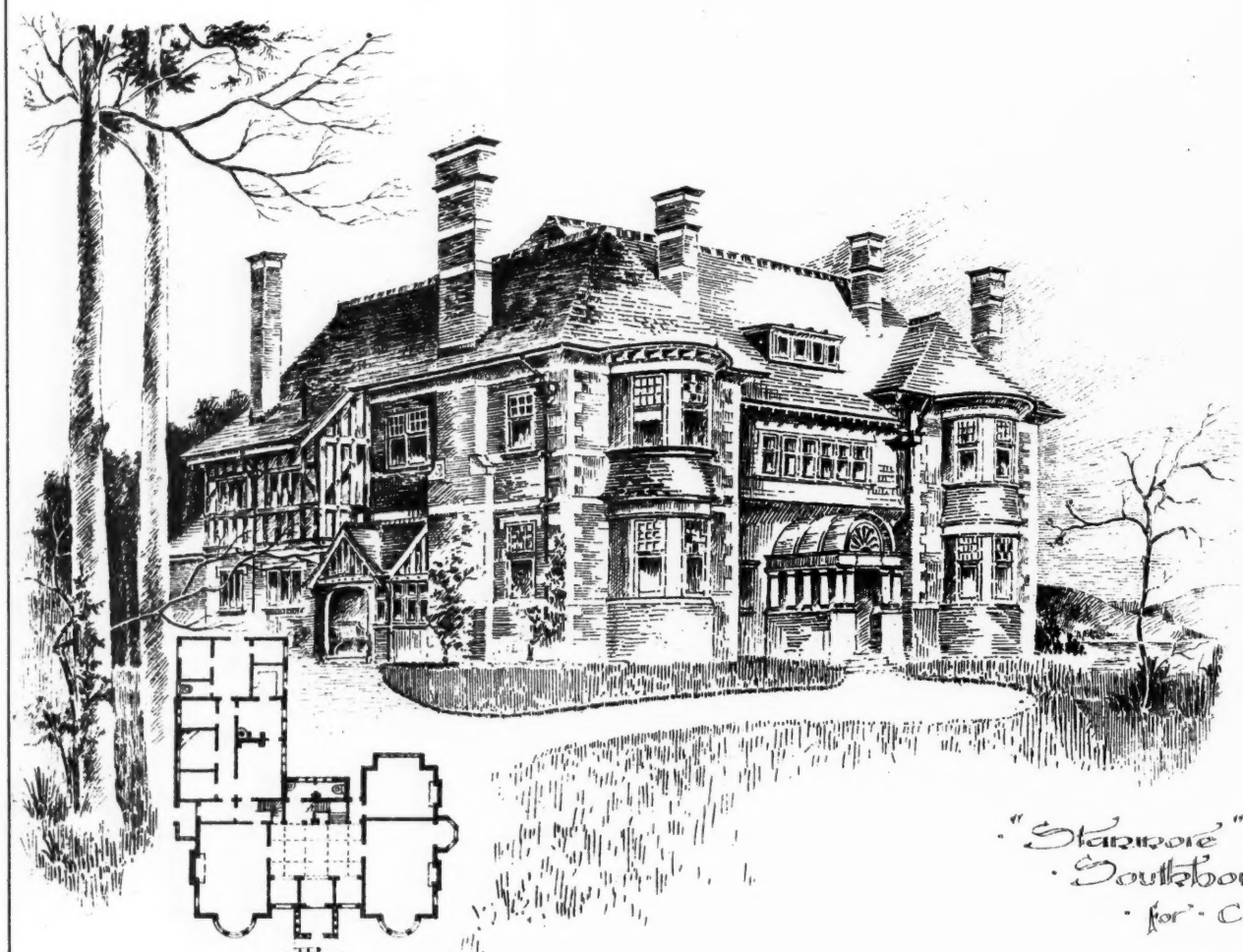

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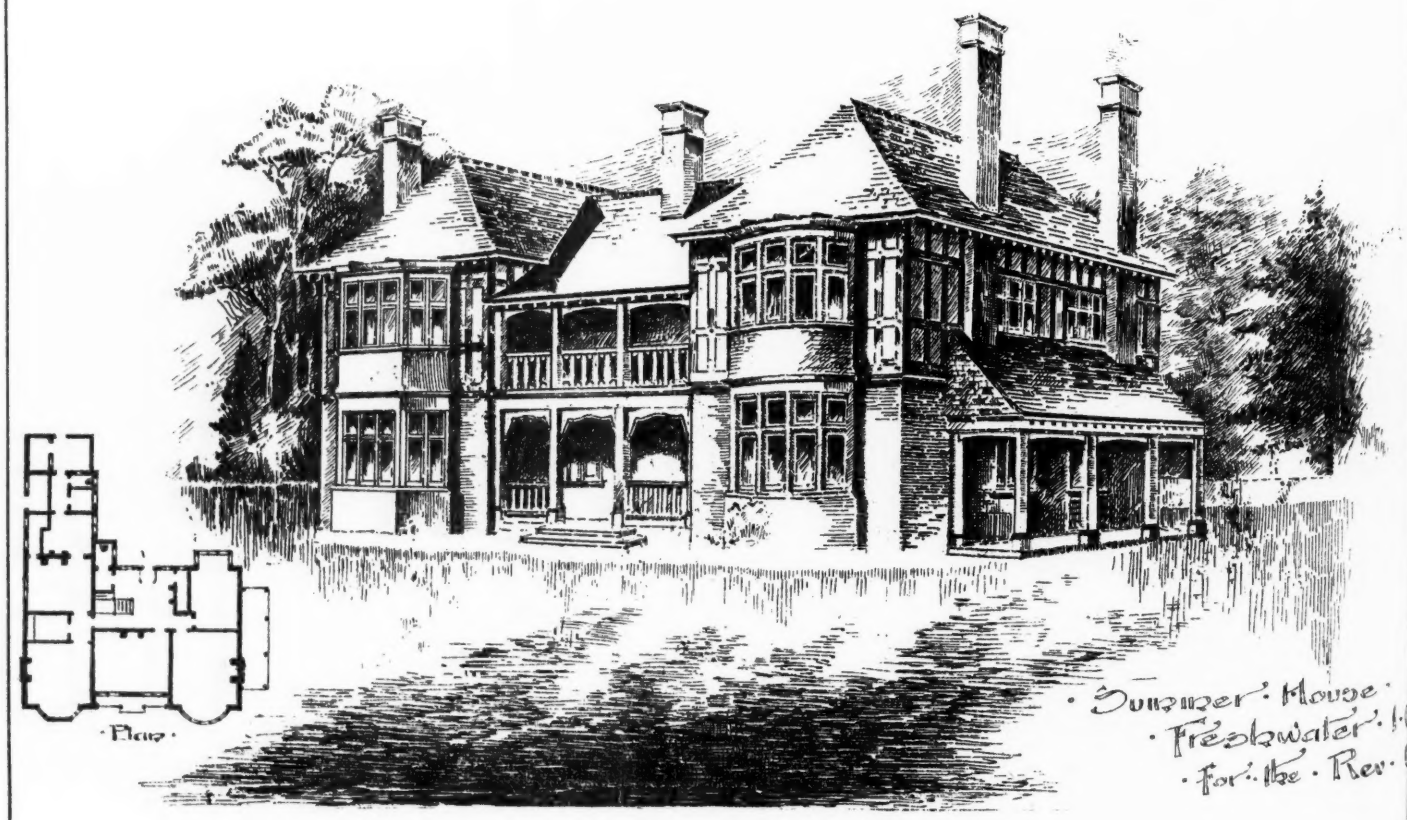

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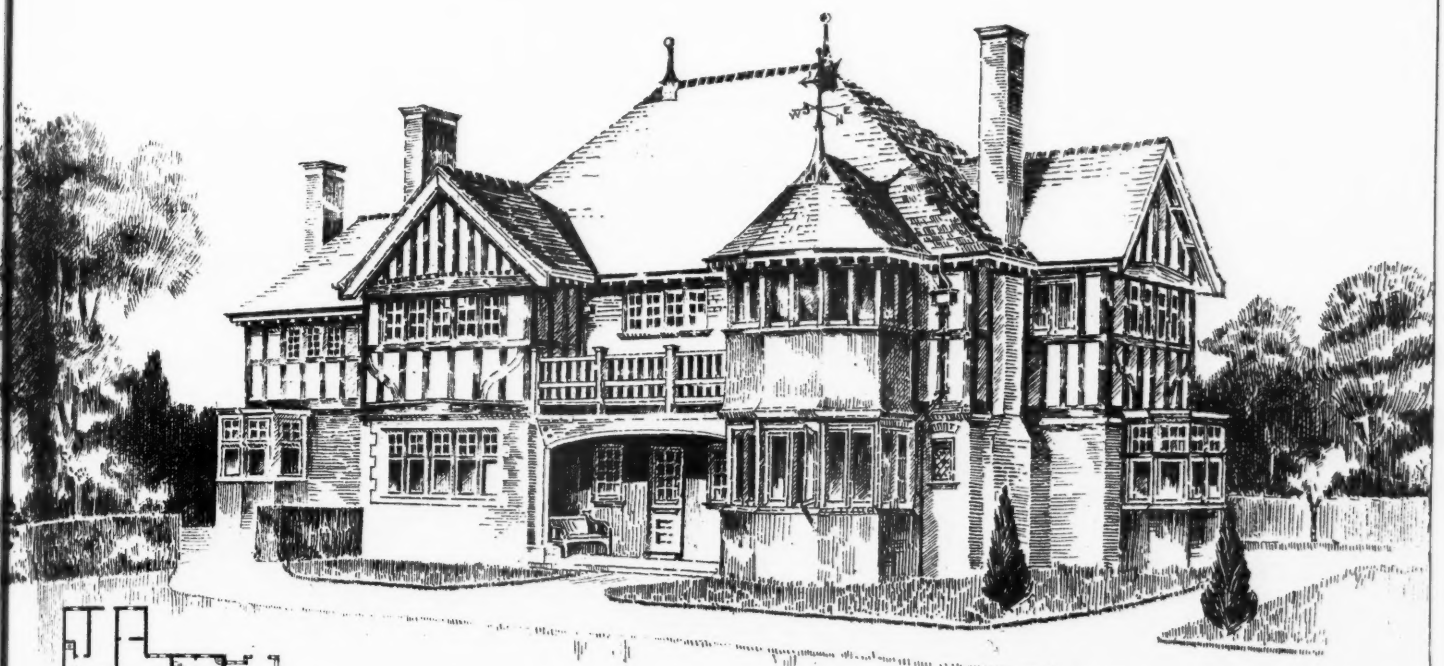

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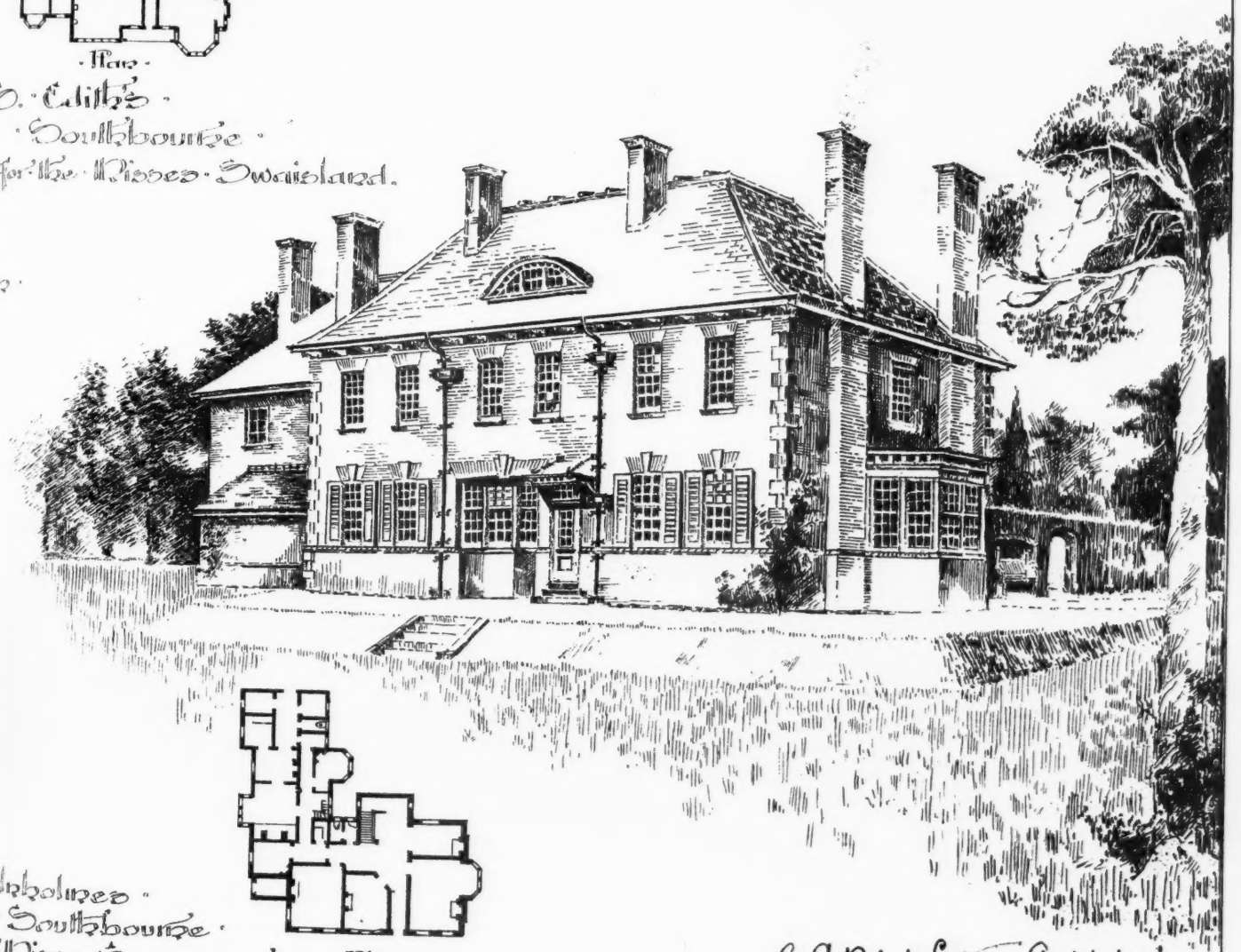
for the Misses Swainland.



Inholmes
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Plan

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